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Remarks
ON
THE TREATMENT OF EMPYEMA.*

BY
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IF we study the statistics of empyema we cannot help being impressed by the fact that it is a very serious disease. Thus, of 1,310 cases in the London Hospital in fifteen years (1909–23) the total mortality was 23.9 per cent.[1] Of 499 cases treated at St. Bartholomew's Hospital the mortality was 28.2 per cent. In infancy the disease is peculiarly fatal. Most observers agree that during the first year the mortality is about 75 per cent., and during the second to fourth year anything from 40 to 60 per cent. Holt puts the mortality during the first year as high as 90 per cent.[2] In older children and in young adult life the mortality is much less, 6 to 20 per cent., but in older people the figures rise again, the London Hospital figures being 31 per cent. at 40 to 50 years of age; 39.4 per cent. at 50 to 60; and 38.4 per cent. at 60 to 70.[3]

The percentage of deaths from empyema among soldiers in 1918–19 during the epidemic of influenza was appallingly heavy. The Surgeon-General's statistics in America showed the average mortality to be about 30 per cent., and in some of the military camps it rose as high as 70 per cent.

When we regard these extremely high figures of mortality, and when we consider, moreover, how many cases which recover for the time being are left with chronic empyema which renders them permanent invalids, and possibly leads to death some few years later, we cannot help wondering whether it should not be possible, by a better understanding of the principles of treatment, or the adoption of a more suitable technique, to obtain more satisfactory results than have hitherto been possible. As the result of the heavy mortality in the military camps in America in 1918, a special commission was set up to study this question, and certain definite principles were enunciated which, it was claimed, made an enormous difference in the results obtained.

Before going on to discuss methods of treatment I should like to remind you of certain facts concerning the physiology of respiration and the physics of pleural effusion and pneumothorax. In a normal healthy adult the average vital capacity—that is, the maximum amount of air that can be expired after a full inspiration—is about 3,700 c.cm. During ordinary quiet respiration, however, the amount of air taken in during each inspiratory effort, the so-called tidal air, is only about 500 c.cm.—rather less than one-seventh of the maximum vital capacity. In the case of a patient with a pleural effusion, or a closed pneumothorax, it follows that though the maximum vital capacity is diminished in proportion to the size of the effusion, the patient is able to carry on quite comfortably so long as he is at rest, provided the effusion is not large enough to prevent the inhalation of some 500 c.cm. of air during each inspiration. Directly he begins to move about, however, and the normal tidal air is not sufficient to provide for his increased need of oxygen, he becomes very short of breath.

Now the usual conception of the physics of a pleural effusion implies that the mediastinum, though subject to more or less displacement according to the size of the effusion, does, as a matter of fact, impose some barrier between the two sides of the chest, so that, although one side may be almost full of fluid and the lung almost entirely thrown out of action, the lung on the other side is able to carry on in virtue of being shut off by the mediastinum.

Now Dr. E. A. Graham[4] and the other members of the U.S.A. Empyema Commission appear to have proved by a series of experiments that this conception of the physics of pleural effusion is fundamentally wrong. By introducing a water manometer into each side of the pleura, both in animals, and in patients recently dead from diseases not affecting the thorax, Graham showed that injection of air into the pleura of one side affects the intrapleural pressure on the other side to an equal degree. By injecting the trachea with plaster-of-Paris and then removing the lungs he was also able to demonstrate that the density of the two lungs was equal. In other words, the compression induced in one lung by injection of air into the pleura on that side was accurately reflected in the compression induced in the lung on the contralateral side.

Now so long as we are dealing with a pleural effusion or a pneumothorax, in a closed chest, it is not a matter of very vital importance whether the mediastinum imposes an effective barrier between the two sides or not. So long as there is sufficient space left in the thorax for the patient to inhale some 500 c.cm. of air every time he breathes, it does not much matter whether he inhales it into one lung or both; but when we convert a closed pleural effusion into an open pneumothorax, which is what we virtually do when we treat an empyema by resection of a rib and open drainage, the question of the imposition of an effective barrier by the mediastinum between one side of the chest and the other becomes one of the utmost urgency. If at each effort of inspiration air is sucked into the pleural cavity by way of a large open drainage tube, at the same time as it is sucked into the lung by way of the trachea, the amount of air which enters the thorax by these two routes respectively is governed entirely by the resistance offered by the trachea and bronchial tubes on the one hand, and by the open drainage tube on the other; and if, as Graham asserts, and I think asserts truly, there is no effective barrier between one side of the chest and the other—if, in other words, we must regard the thorax as a single cavity and not as two separate cavities—it is possible, by increasing the size of the opening in the chest wall, to produce a condition in which all the air enters into the pleura and none into the lung. In other words, to produce sudden asphyxia and immediate death; and as a matter of fact this is what actually does happen, provided the opening in the thoracic wall is sufficiently large. Short of this it is found experimentally that an attempt is made, by means of forced respiratory efforts, to overcome the disability induced by the open pneumothorax. Inspiration becomes very much deeper, and results in partial compensation. The intrapleural pressure becomes negative during the height of inspiration, and so enables the animal to inhale a sufficiency of air to keep it alive. If the pneumothorax is temporarily closed the animal experiences immediate relief, and by the end of about five or six minutes the negative pressure in the pleura has attained its normal range during the whole respiratory cycle. Owing to the partial compensation effected by forced inspiration it is possible to sustain life with a much larger opening in the chest than would otherwise be the case, and Graham has worked it out on mathematical principles that the largest opening compatible with life in an average healthy adult man is about 8 sq. in. (2 in. by 4 in.).

In a patient suffering from empyema, however, the additional embarrassment of respiration produced by an open pneumothorax is a much more serious matter. One lung at least is partly thrown out of action by consolidation, and in streptococcal broncho-pneumonic cases both lungs are involved—and this at a time when more oxygen than normal is required to keep pace with the increased metabolism of fever. The muscles of forced inspiration have already been brought into play, and, owing to the patient's general toxaemia and weakness, they are in no condition to make any sustained effort of compensation to counteract the effects of an open pneumothorax. We can readily appreciate, therefore, that an open resection, followed by the introduction of a large drainage tube, in a patient already desperately ill, may easily give an adverse turn to the balance between life and death.

In order to test the effect of open drainage, Graham performed an interesting series of experiments on animals. After some difficulty he was able to isolate a strain of streptococci which produced empyema when injected into the pleura of dogs. Ten pairs of dogs, carefully graded as regards weight and general condition, were inoculated, and

* An address given to the Trowbridge Division of the British Medical Association, November, 1928.

twenty-four hours later a stiff open drainage tube, 1/4 in. in diameter, was inserted into the thorax of one of each pair. Of the ten drained dogs all died except one which tore out the tube, and was found later, when killed, to have had an empyema which had healed. Of the undrained dogs seven died, one as the result of injuries by fighting with another dog, and three recovered. When both dogs of a pair died, the one that had been drained died sooner than the other in every case. So far as they go, then, these experiments show that open drainage, instead of being of value, was attended by greater mortality and earlier death.

The statement that treatment of an empyema by open drainage imposes an additional handicap by further embarrassment of respiration only applies, of course, to cases in which there are no adhesions. In those patients in whom the empyema is sealed off from the rest of the thoracic cavity by dense adhesions between the visceral and parietal layers of the pleura it is a matter of little or no importance, as far as the physics of respiration are concerned, whether the cavity is closed or open, and whether it is filled with pus or atmospheric air.

It is necessary, therefore, to distinguish clearly between two classes of empyema—those in which the pus is lying free in the cavity of the thorax, and those in which it is shut off by adhesions. Now the formation of adhesions is entirely a matter of time. In cases of ordinary lobar pneumonia, where there is always a certain amount of pleurisy as well, an empyema is usually a comparatively late manifestation. It develops gradually as the pneumonia begins to subside, and by the time it is diagnosed it is usually cut off entirely from the rest of the thorax by the formation of thick masses of adhesive fibrin. On the other hand, in the case of streptococcal empyema associated with broncho-pneumonia the condition is just the reverse. The invasion of the pleura by infective organisms takes place quite early in the illness. An empyema develops almost at the same time as the broncho-pneumonic changes in the lung, and it may appear so rapidly as to constitute almost a primary manifestation of the illness. In such cases there has been no time for adhesions to form, and the empyema is lying perfectly free in the cavity of the thorax. Such cases, which are specially common in infancy, are always severe, and the patient, especially if a very young child, is usually desperately ill, and any elaborate or immediate operative intervention, especially if it involves even a temporary open pneumothorax, is much more likely to kill it than to save its life. If it is determined to apply open drainage at all to a case of this type it is absolutely essential to temporize, and to be content with aspiration, to evacuate the pus, till such time as adhesions have had time to form and seal off the cavity from the rest of the thorax. Aspiration itself is a somewhat painful and distressing procedure, and to perform with success a second or even a third aspiration on a desperately ill and probably terrified child is not necessarily as easy or satisfactory as it might at first sight appear. It is in such cases especially that the performance of continuous suction drainage, by the introduction of a soft self-retaining catheter attached to a water-pump, appears to offer such enormous advantages over other methods of treatment. The introduction of the catheter itself is a very trivial affair, and entails very much less shock than any more elaborate surgical intervention, and since it avoids the risk attached to the induction of an open pneumothorax this method may be employed at the earliest moment, even in streptococcal cases, in which no adhesions may be expected to have formed.

Whatever method is adopted to drain an empyema there is one important principle to be observed in the after-treatment, and that is the paramount necessity of sterilizing the cavity at the earliest possible moment and of preventing any secondary infection through the opening made in the chest.

Bacteriological examinations seem to show that secondary infection of the cavity during the period of drainage is largely responsible for delay in the recovery of a great many patients. Prolonged inflammation of the pleura, whether it results from the primary infecting organism or from some secondary infection, causes the ordinary endothelium of the pleura to be replaced by fibrous connective tissue, with the result that the lung is firmly bound down and prevented, possibly for ever, from completely expanding to fill up the chest. A permanent thick-walled cavity may thus be formed, and a chronic empyema result, with all its attendant risks to health and even to life. The sooner, therefore, that we are able to disinfect the cavity in the thorax, and the more successful we are in preventing the introduction of fresh organisms from without, the more likely we are to prevent the formation of a chronic empyema.

As a general principle, therefore, it may be said that an empyema cavity should be rendered sterile at the earliest opportunity, and in order to do this, frequent irrigation with some suitable antiseptic is of very great assistance. Of all antiseptics chlorine solution seems to be the most efficient and suitable. During the last two years of the war, when I was chiefly concerned with the treatment of some hundreds of patients with penetrating and, in many cases, heavily infected chest wounds, I found, in common with others, that frequent irrigation with Dakin's solution was of the utmost value. In the first place, it is non-toxic, and can be freely used without any fear of ill effects; and, secondly, it appears to have a special action in softening and breaking down those large masses of fibrinous exudate which so often make efficient drainage a matter of great difficulty.

There is one point in connexion with the disinfection of an empyema cavity that is of some practical importance, and that is, that the upper part of the cavity seems less easy to render sterile than the lower part. This is probably because the rounded surfaces of the lower part of the cavity are more accessible to the antiseptic than the narrow sinus between the expanding surface of the lung and the upper part of the chest wall. Whatever the explanation may be, it is found in practice that it is more satisfactory to make the opening in the chest wall near the upper limit of the cavity rather than, as one would naturally expect, at the most dependent part.

Though I have directed my remarks chiefly to the principles which it appears ought to be observed if the treatment of empyema is to be satisfactorily carried out, I may perhaps be allowed to make a few remarks about the methods by which these principles would appear to me to be best put into practice. Before doing so, however, it may be as well to recapitulate shortly what those principles are. The principles to which any ideal form of treatment should conform are:

1. Operative procedure should be such as involves the minimum of time and the minimum of shock.
2. If it is necessary to employ the method of open drainage, this should never be performed until it is reasonably certain that the empyema cavity has become sealed off from the rest of the thorax by adhesions.
3. In connexion with the last it is imperative to distinguish between pneumococcal empyema, in which adhesions are usually formed by the time the empyema is diagnosed, and streptococcal empyema, where adhesions are not usually formed till later.
4. In order to minimize the risk of secondary infection the opening in the chest wall should be no larger than is sufficient to admit a suitable drainage tube, and should fit closely around the tube when it is placed in position.
5. The cavity should be sterilized as early as possible by frequent irrigation with some suitable antiseptic, to prevent the formation of dense fibrous adhesions, which prevent the expansion of the lung and the early closure of the cavity.
6. The lung should be encouraged to expand by ensuring a negative pressure in the pleural cavity throughout the period of drainage.
7. Convalescence should be assisted by giving plenty of nourishing food, and, whenever possible, by treating the patient entirely in the open air.

The method of treatment which would appear to fulfil these principles more completely than any other is that of closed continuous-suction drainage. This method is, of course, by no means new. It has been tried by various people and in different hospitals for a good many years. For certain reasons, however, it does not seem to have attained that measure of popularity which I venture to think it deserves. The technique usually employed, of introducing a stretched rubber tube through a metal cannula, which is allowed to remain in position, presents

a very real disadvantage in the fact that the cannula is very apt to become displaced, especially in a restless child, and come out of the chest, pulling the drainage tube with it. This difficulty is entirely obviated by using a self-retaining rubber catheter, which is either introduced direct through a very small incision into the chest, or through a cannula, which is withdrawn immediately the drainage tube has been inserted. I have had an oval trocar and cannula specially made to enable a larger catheter to be introduced between the ribs than would otherwise be possible, but I am not sure that this method presents any material advantage over the method of direct introduction through a small incision in the chest wall. Two other disadvantages have been cited against this form of treatment—namely, that it is difficult to ensure adequate drainage, and that after-treatment requires almost continuous supervision by specially trained nurses. With regard to efficiency of drainage, we have not found the difficulties so great as would be thought. Irrigation of the cavity by Dakin's solution, two or three times a day, seems to soften or disintegrate those large masses of fibrin which so often impede the free passage through the tube. If the latter appears to be blocked it is detached from the suction apparatus, and, by means of a glass syringe, Dakin's solution is alternately forced gently through the tube and sucked out again. By doing this a large amount of fibrin can often be removed, and when the suction apparatus is replaced drainage is found to proceed quite satisfactorily. The last objection to continuous suction, that it requires unremitting attention, is only partially true. Once it is satisfactorily started very little attention is required, unless the tube gets blocked and requires syringing out, as it occasionally does. Irrigation with Dakin's or some other antiseptic ought to be carried out at least two or three times a day, no matter what method of drainage is adopted, and it is much easier to detach the suction pump and irrigate through the catheter than it is to remove the messy dressings from a patient's chest and irrigate through an ordinary open tube. One way and another, I do not think that this method requires more attention than can easily be given in the ordinary routine way in a hospital ward or a nursing home.

During the last eighteen months I have treated all cases of empyema coming under my care, twelve in all, by this method. Of these twelve cases, one, a man of 35, who had a large chronic empyema of some five months' duration, died as the result of multiple cerebral abscesses three weeks after admission, and while the empyema was still draining. The other eleven cases have all done uniformly well.

After removal of the catheter I have, in all cases, put a fine tube into the sinus to drain the small cavity remaining. The sinus is usually healed completely after three or four days, but in four of my patients the wound, after closing up, has broken down again, and a small abscess has discharged, after which the sinus has again closed up and given no further trouble. This is perhaps due to the wall of the sinus itself being infected, and can probably be obviated by treating the latter with flavine or some similar preparation. In all cases except one the cure has, I believe, been complete, and, so far as one can tell, permanent. One patient, who originally had a very large staphylococcal empyema of ten weeks' duration, returned to his work as a miner some six weeks after discharge, and came back to hospital two months later with an abscess pointing over the old sinus; some six ounces of pus were evacuated from the cavity, which rapidly healed and has not, so far, recurred. Another patient had a double empyema, both sides being drained simultaneously, and closing on the seventeenth and eighteenth days respectively. This patient has remained fit ever since, and I am informed he has been for some months working about his farm as usual.

The average period during which drainage has been required has been nineteen days. One particularly satisfactory feature in all has been the rapid expansion of the lung, as shown by the amplitude of respiratory movements on the affected side, and the return of breath sounds at the base.

The ages of the eleven patients still living ranged from 4 to 50 years; the organism isolated was the pneumococcus in eight cases, combined in one instance with the streptococcus and the tubercle bacillus; in two cases the staphylococcus; and in one case the *Bacillus coli*.

The advantages that I think one can justly claim for treatment by continuous suction drainage are:

1. Introduction of the catheter is rapid and easy, and entails virtually no shock.
2. Anaesthesia is correspondingly brief, and, if necessary, the operation could be done, except perhaps in infants, with a local injection of novocain.
3. The tube causes little or no pain.
4. Nursing of the patient is much easier and cleaner.
5. The risk of secondary infection of the empyema is very much diminished.
6. The wound closes quicker than by open drainage.
7. Re-expansion of the lung is more rapid and complete.

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[1] *British Medical Journal*, 1925, ii, p. 333. [2] *Diseases of Children*. [3] *British Medical Journal*, 1925, ii, p. 334. [4] *Empyema Thoracis*, 1925.

THE PROGNOSIS AND TREATMENT OF ECLAMPSIA AND ALBUMINURIA:

WITH SPECIAL REFERENCE TO THE RISK OF RECURRENCE IN SUBSEQUENT PREGNANCIES.*

BY

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IT is in some ways remarkable that, despite the close study which the clinical features of the toxaemias of late pregnancy have received, we should now be discovering, not only that there are still a few fields left for us to explore, but that some of our teaching on the basic clinical facts has proved to be incomplete and in certain respects actually unsound. Take, for example, eclampsia. It has been almost a commonplace in our teaching that a woman who has suffered from this condition is little likely to suffer in any similar way in her next pregnancies. A study of such cases proves this to be incorrect. At the British Congress of Obstetrics and Gynaecology in 1927 [1] showed that in 47 consecutive cases of eclampsia in parous women admitted to the Edinburgh Royal Maternity Hospital eclampsia occurred six times in a previous pregnancy and "albuminuria" nine times. This gave a total recurrence figure of 31.9 per cent. Adding to this six cases, in which there had been abortion, accidental haemorrhage, premature or stillbirth without toxaemia in the previous gestations, we got a total recurrence of abnormality of 44.7 per cent.

Dr. Jessie C. B. Sym has since carried out a similar investigation of the subsequent obstetric history of the surviving cases of eclampsia treated in the hospital from 1919 to 1926, and in a total of 67 cases which were traced she found that 42 had become pregnant again, with a total of 60 completed gestations. Of these, 3 had developed eclampsia for the second time, with a fatal result in one case, whilst in 15 of the other pregnancies "albuminuria" occurred, giving a total of 18 out of 60 subsequent pregnancies which were toxaemic, or 30 per cent. Adding to this 6 more, in which abortion, etc., took place, we get 24 abnormal pregnancies out of a total of 60, or 40 per cent., a figure which emphasizes the risk which is run by an eclamptic patient should she become pregnant again.

A similarly sinister record is revealed when the "albuminuria" cases are studied. In the paper to which I have already referred I recorded a recurrence of toxaemia, and of abortion, etc., without toxaemia, in 42 out of a total of 118 studied—that is, in 35.6 per cent. These figures referred to the previous pregnancies in parous women admitted to the hospital with "albuminuria." By following the surviving cases into their subsequent obstetric life we have found that 51 out of 81 cases subsequently became pregnant again, and had between them 84 completed pregnancies. Of these, 44 had "albuminuria" (this diagnosis was based on clinical evidence supplied by the patient in 5) —that is, 52 per cent. In 14 of the other pregnancies there occurred abortion, accidental haemorrhage, etc.,

* A paper read before the Section of Obstetrics of the Royal Society of Medicine, November 16th, 1928.

without toxaemia, making a total abnormality recurrence of 58 in 84, or 69 per cent. The considerable increase in the percentage of recurrence in the pregnancies occurring after the first toxic gestation treated in hospital as compared with those in the pregnancies prior to this is to be accounted for by the fact that in many instances the follow-up proved the attack of toxaemia treated in the hospital to be the beginning of the recurring sequence.

We thus see that 82 out of a total of 144 subsequent pregnancies in cases of toxaemia (eclampsia and "albuminuria") were vitiated by toxaemia or intrauterine disaster to the foetus without toxaemia—that is, a percentage of 57. Furthermore, 3 of the 93 women who became pregnant subsequent to their leaving hospital died from toxaemia in a subsequent pregnancy—that is, more than 3 per cent. It is probable that this death rate would have been actually higher could all the cases have been followed up, for it is known that "deaths" are notoriously difficult to trace.

Findings similar to those here recorded have been reported by other observers—by Greenhill[1] and Gibberd,[2] for example. Greenhill studied the subsequent completed pregnancies of 16 women who had had eclampsia, and found that in 9 these were normal, whilst in 7 they were toxaemic—that is, in 43 per cent. Gibberd found that in 28 cases of albuminuria there was a recurrence of the toxaemia in 19—that is, 68 per cent.

This large incidence of recurrence in all classes of toxaemia carries with it implications of far-reaching importance. In my opinion this fact of recurrence, applying as it does to all types of the disease—eclampsia, pre-eclampsia, etc.—constitutes the most significant addition to our knowledge of the subject made within recent years, and it must be regarded as an important new clue in our efforts to trace the underlying causes.

The first lesson it teaches is the inadequacy of our present classification, for this has been based on the view that eclampsia and "pre-eclampsia" are essentially non-recurrent. The type in which recurrence is the characteristic feature we have thrown into a category by itself. We have classed it as "recurrent," or, in view of the observable kidney lesion sometimes accompanying it, as "nephritic." The new discoveries obviously render this classification unsound, for it is clear that in respect of the criterion of recurrence there is nothing to distinguish one kind of late pregnancy toxaemia from another. Furthermore, it is apparent that the view which attributes recurrence to a defect in renal function must, if well founded, apply equally over the whole range of these toxaemias.

I have elsewhere discussed the discrepancies in fact and in theory which seem to me to lie at the back of any such view, and I cannot enter into the matter fully on this occasion. At the outset I would direct your attention specially to the fact that the attitude we adopt towards this question has implications which are not merely academic in their nature. Bound up with them are important issues of an essentially practical nature. We may, in the first place, in accordance with the usual teaching, attribute the tendency to recurrence to a chronic renal defect, which leads to a breakdown of function in succeeding pregnancies. In support of this view we may cite the nephritis which punctuates these recurring toxaemic gestations, and, in addition, the evidence of nephritis which is sometimes found in the intervals between the pregnancies. On the other hand, we may regard the nephritis as caused by the toxaemia, which in such women tends to recur during their pregnancies, and the accumulated result of which in some instances may be to produce persisting and chronic nephritis. These two standpoints are distinct and mutually exclusive. According to one the recurring toxaemia springs from the kidney defect. According to the other the kidney defect springs from the recurring toxaemia.

For many years I have been unable to satisfy myself that in endowing the kidney with etiological properties of a primary character we were not theorizing beyond our facts. As I now see it I am satisfied that, whilst we are still far from a complete understanding of all the phenomena, the data, when fairly marshalled and analysed, drive us in a very compelling manner to regard the kidney as an organ which in the sequence of events plays a part which is entirely secondary, and which in its liability to suffer damage by the specific toxins elaborated during the development of a vitiated pregnancy is in no way different from such other organs as the liver and the heart. The arguments in favour of this view may be summarized as follows.

1. A recurrent attack of eclampsia or albuminuria is in no essential fact different from the initial attack in the first pregnancy involved. Now there is no evidence that this initial attack is in any way, directly or indirectly, dependent upon a renal defect. There is, on the other hand, ample evidence that the kidney damage invariably occurring in such a case is directly caused by the toxins elaborated in a specific manner in some other region of the pregnant organism. Why in a recurrent attack should the relation of the kidney in the sequence be different?

2. Just as the initial eclampsia or albuminuria occurs typically in a woman whose kidneys were previously healthy, so typically in the intervals between the pregnancies, which are recurrently toxic, the kidneys reveal no evidence of any deficiency. Furthermore, subsequent to a series of toxaemic pregnancies, in each of which the kidneys have suffered, the patient may enjoy good health with no cardio-vascular or renal disease so long as she does not again become pregnant.

3. The chronic renal lesion found occasionally in such women is easily explained as due to the effects of one bad attack or to the accumulated results of the damage sustained during a recurrent series of toxic pregnancies. Dr. Jessie Sym has carried out an examination of the cardio-vascular system, of the blood urea and the urea concentration test, in 66 post-eclamptic and 73 post-albuminuric cases treated in the Edinburgh Royal Maternity Hospital. This revealed evidence justifying a diagnosis of chronic renal change in 2 of the post-eclamptic cases (3 per cent.) and in 6 of the post-albuminuric cases (8 per cent.). The significant fact is that in 7 out of these 8 cases the patients had two or more toxic pregnancies. Of those cases—comprising approximately half of the total number—in which a single toxic pregnancy had occurred, in only one was chronic renal change found, and in this case the toxaemia lasted for eighteen weeks. These facts indicate that the degree of involvement of the kidney is directly related to the interval over which it is exposed to the toxins of an abnormal pregnancy.

4. Marching side by side with the tendency to recurrent toxaemia there is a well-recognized tendency to the succeeding pregnancies of such women being terminated prematurely by abortion, stillbirth, or accidental haemorrhage. This tendency has usually been attributed to a chronic renal deficiency. In my previous papers I have called attention to the fact that these abortions, etc., may be unassociated with any toxic manifestations or any recognizable renal defect, although they occur in women known to have this tendency to recurrent toxaemia in their other pregnancies.

For lack of a better explanation in the past we have in similar contingencies had recourse to the "nephritic" conception. In this view these damaged pregnancies would be attributed to a deficiency in renal function which is so meagre that it fails to reveal itself in the ordinary ways. How, it may be asked, could such a minimal defect, which is insufficient to cause any clinical evidence of its presence, precipitate the intrauterine disasters which these crises necessarily imply?

It was considerations of this order that led me some years ago to approach these problems from a new angle. A critical analysis of the available data early proved that whilst the fact of toxaemia was the dominating clinical phenomenon, and as such had naturally obtruded itself into the forefront of the problem, it was by no means invariable and essential. It was rather of the nature of an accident or incident, which might occur in some circumstances but not in others. Thus, for example, it might be present in one pregnancy ending in accidental haemorrhage, whilst in the same woman it might be absent in the next pregnancy which ended similarly. Whilst toxaemia was thus purely incidental, there was, on the other hand, one factor, and one factor alone, which seemed to run

throughout the process as an invariable accompaniment of the abnormal pregnancies, toxic and non-toxic alike. This was disease of the placenta. In all the affected pregnancies, whether they ended by abortion, accidental haemorrhage, or stillbirth, and whether they ended in toxaemia or not, one could always find placental damage. The existence of such a pronounced lesion, which, according to this reading, must be considered as arising independently of the toxic process, naturally pointed to a possible source of the toxic elements, which all agree to be responsible for the toxaemia of pregnancy. As I have shown, it is possible to account for all the known facts by predicating in such women the existence of some factor which during pregnancy may precipitate a toxaemia by involving the life of the placenta. This factor, whatever it be, is liable to persist in the intervals between the pregnancies, during which it may cause no apparent trouble, but it is apt to reassert itself in the same way during the next pregnancy. Whether, after the placental damage has occurred, toxaemia will follow will depend on two variables: (1) the amount of placental tissue involved, and (2) the time during which the damaged placenta is retained in the uterus.

OBSERVATIONS ON TREATMENT AND PREVENTION.

From this study of the subsequent fate of toxaemic cases we may draw lessons regarding (*a*) the management of, and the indications for terminating, an existing pregnancy, and (*b*) the question of future pregnancies.

Management of Existing Pregnancy.

In every toxaemic case the immediate outlook is uncertain, and, even in the mildest case, it is impossible completely to exclude the risk that at any moment the clinical picture may change rapidly for the worse. For these reasons, were we to consult the interests of the mother alone, we would be justified in terminating the pregnancy in almost every instance so soon as the first toxic manifestations appear. In addition to these immediate dangers there is the more remote risk of the patient suffering lasting damage to her cardio-vascular system and kidneys. In this series of hospital cases, which, of course, comprise those suffering most severely, this risk assumes the proportion of 8 per cent. of the total. As I have previously shown it is minimal in the woman with her first attack, the major danger being reserved for those with repeated toxic pregnancies.

Against these sombre admissions there must be urged the experience of all that many toxaemic pregnancies respond with rapidity to ante-natal care and hygiene, with special reference to the diet, the bowels, and rest. It is in this class of work that modern ante-natal treatment has claimed some of its greatest triumphs. At the same time there is, it seems to me, a risk that we may overestimate our powers in this connexion, for we must acknowledge that in this disease, which affects 3.5 per cent. of all pregnant women (Eden and Holland), the majority of the cases are destined from the beginning to pursue a simple course, just as we know that the greater proportion of the severe cases resist all our efforts to cure them.

The only sanction we have for an expectant line of treatment is that we may thereby carry the pregnancy over into a period that will ensure the viability of the child. In this very matter, however, our decisions are still further complicated by the fact that the disease, which so heavily prejudices the life and health of the mother, is even more unkind to the foetus. Of all the maternal diseases toxaemia is the one which is most lethal to the child. Thus Holland, in a series of 301 foetal deaths, showed that 77 were caused by albuminuria, eclampsia, or accidental haemorrhage—that is, 26 per cent. In the present record of albuminuric cases 49 out of 168 children died *in utero*—that is, 29 per cent. It is known that many of those born alive survive only a short time.

These considerations show that whenever we elect to treat a toxaemic patient expectantly we may be gambling with the life or health of the mother in the interests of a child whose survival is problematical. I am convinced that in the past we have often been over-zealous in our regard for the child and too little attentive to the interest of the mother.

Where and whilst the manifestations are slight and the patient is under adequate supervision one may often safely temporize. In such a case, however, the termination of pregnancy as soon as the eighth month is well entered upon may be in the best interests of the infant.

Where there is marked oedema of the limbs and face, a blood pressure raised 30 or 40 mm. or more, a heavy deposit of albumin in the urine, a marked drop in the urinary secretion, and more especially if there are headache and visual symptoms, delay is dangerous. In less severe cases a delay sufficiently long to test the response to treatment may be considered justifiable, but any change for the worse, such as a rising blood pressure, a sudden drop in the quantity of urine, severe headache, etc., or a refusal of the symptoms to abate under rest in bed, watery diet, and active eliminative treatment, indicates the need for intervention.

In all toxaemic cases, except those that are mild, which are seen before the seventh month, experience has taught me that delay is rarely if ever justified, for this necessarily implies a dangerously long interval of waiting before viability of the child is reached. I would like to see it laid down as an axiom that, except in mild cases, no toxic patient should ever be kept under treatment for more than two weeks, and then only if the progress is good. A disregard of this precept may damage a woman's health irreparably; these risks, as we have seen, are especially to be guarded against in women who have suffered damage in their previous pregnancies.

For ordinary routine purposes, where the urgency is not immediate, the best means for the induction of premature labour is the gum-elastic bougie or some similar method. Pituitary extract is of little avail for this purpose until the last days of pregnancy, although the hypodermic administration of 5-minim doses of this drug is of value in reinforcing the action of the bougies once uterine efforts commence. I then use 5 minims every half-hour till a total of 2 c.cm. has been administered. Where the blood pressure is high, pitocin, which contains the ecbolic principle of the posterior lobe without the pressor agent, may be employed.

For cases of grave urgency the bougie method for inducing labour is too slow and too uncertain, and for such cases I employ Caesarean section under spinal anaesthesia. With this operation we obtain immediate evacuation of the uterus in a case where every hour's delay may jeopardize the prospects. By means of spinal anaesthesia we reduce the shock and we eliminate the risk of further damage to the organs associated with a general anaesthetic. Among these risks one of the greatest is irritation of the bronchioles, passing on to bronchitis and bronchopneumonia, from which toxaemic cases are specially liable to suffer.

For these reasons I have come to regard spinal anaesthesia as the ideal method in such cases. The immediate fall in blood pressure attending its use may in some ways be regarded as an added advantage in patients in whom an elevated pressure often constitutes a dangerous feature. At the same time I should like to take this opportunity of commending a wider employment of spinal anaesthesia as the routine procedure in Caesarean section. One of the most striking effects of the removal of the control of the spinal centres resulting from its use is a spontaneous and immediate contraction of the muscle of the uterine wound, producing a sort of natural haemostasis, which in many cases is so marked that the operation can be carried out literally without the loss of more than a few drachms of blood. In many instances—for example, in collapse from the exhaustion of a protracted labour or from loss of blood, as in placenta praevia—this fact may lead to a considerable reduction in the risk associated with the management of the case. A series of about 40 cases of Caesarean section so carried out by myself and my assistant with no mortality and in which are included a considerable number of grave cases of toxaemia, of placenta praevia, and of obstructed labour with potential sepsis, has led me to conclude that spinal anaesthesia has brought into the operation of Caesarean section a measure of safety which it

did not possess before. In cases where a drop in blood pressure is to be feared—as, for example, in the collapse from haemorrhage or in bad cardiac cases—I have, in addition, employed adrenaline, and, latterly, vasopressin.

At this point I would make it clear that once the toxaemia passes over into an eclamptic seizure any active intervention is to be rigidly avoided, and the patient must be treated along such lines of expectancy as those laid down by Stroganoff and others. On two occasions, it is true, I have carried out Caesarean section under spinal anaesthesia where the patients made a good immediate recovery under the Stroganoff treatment, but where, several days afterwards, there was a sudden and alarming recrudescence of the clinical features — rise in blood pressure, fall in urinary secretion, etc. The operative delivery was carried out with the idea that the risk of delay was greater than the risk of terminating the labour with the help of the spinal anaesthesia. A further indication in these cases was the continued intrauterine survival of the child, which I regard as a feature adding greatly to the gravity of the prognosis.

The Question of Future Pregnancies.

Among the lessons to be drawn from the data assembled in an earlier part of this paper there is one which is of profound importance. It is that the risk of toxaemia in subsequent pregnancies is so great that all such women should be warned of the importance of placing themselves under medical supervision from the early stages, should they again become pregnant. In the present state of our knowledge on ultimate causation we are not equipped with any certain method of protecting a woman with this taint against the risk of recurrence, but we can do much to safeguard life and health by emphasizing the imperative need of this ante-natal care if the major risks are to be avoided. The necessity for explaining these facts is all the greater because of the rapid recovery which usually follows on one attack and which often gives the patient a sense of security which is little justified. The woman who has already suffered from several toxaemic pregnancies should be the object of very special ante-natal supervision in the event of a future pregnancy.

The next point we have to consider is the advice to be given in regard to preventives. So great is the risk run by women with this taint that this matter of prevention may be considered as arising in practically all cases. Personally I believe it may be laid down as a rule that no woman should be exposed to further risk if she has had two or more toxic pregnancies, for the risk of future recurrence rises rapidly with the number of pregnancies already so vitiated. Where, on the other hand, the disease has involved the loss of the child on each occasion, there may be such a desire for a further attempt that the medical attendant may require to be satisfied with urging that this can only be sanctioned if the patient adequately recognizes the need for supervision throughout the pregnancy.

In anticipation of a future pregnancy everything should be done to build up the strength of the patient and to remove any factors that may, even indirectly, have a bearing on this tendency to recurring trouble. It has been suggested by some observers that focal sepsis may play a contributory part in the taint which these women carry over from pregnancy to pregnancy. In a previous paper I have referred to some considerations which are in keeping with this view, and have suggested that it is conceivable that some such factor is at the back of the tendency to placental disease, which, as I have pointed out, is the only essential lesion of the pregnancy in such cases. In a few instances I have found that, following the removal of gross sources of focal sepsis—for example, tonsils and teeth—a previously unbroken sequence of damaged pregnancies has been interrupted and has been succeeded by normal gestations. The data are still too meagre to allow of a definite pronouncement on this matter, and I merely throw out the suggestion tentatively. In eliminating this factor of potential sepsis, however, we are taking a step likely to help the general health and resistance even should the subsequent history fail to establish it as a factor of primary value.

CONCLUSIONS.

1. In a series of hospital cases treated for eclampsia and albuminuria there was found to be a recurrence of toxaemia or non-toxaemic interruption of pregnancy (abortion, accidental haemorrhage, etc.) in succeeding gestations in over 50 per cent.

2. There is no evidence that this tendency to recurrence is directly or indirectly dependent upon any persisting renal defect. Chronic nephritis is found in only a small proportion of cases, and there is evidence that this is the result of the toxaemia.

3. In view of the large risk of recurrence the need for ante-natal supervision from an early stage in the event of a subsequent pregnancy should be clearly explained to the patient.

4. Toxaemia in two or more pregnancies is an indication for the prevention of any further pregnancy.

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THE PRESENT POSITION OF ULTRA-VIOLET LIGHT THERAPY.*

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IT is now so generally realized that ultra-violet light radiations consist of a small block of waves in the electro-magnetic spectrum that it is unnecessary to enter at any length into the physical nature of this source of energy. It is also realized that this electro-magnetic spectrum stretches from beyond the gamma rays of radium through *x* rays on to ultra-violet light, then through the visible spectrum to infra-red, and on to the Hertzian waves, which are employed both in wireless and in diathermy.

Owing to the extreme differences in wave-lengths between one end of the spectrum and the other, it has been found impossible to use the same unit of wave-length measurement, and this has constituted one of the difficulties in understanding the nature of ultra-violet light. The Angström unit is nothing more or less than an agreed subdivision of the metre or millimetre which gives a number to the shorter waves of the spectrum that is neither absurdly large nor carried to an absurd number of decimals. For instance, it would be extremely inconvenient to think or talk of the distance between Edinburgh and London as being, say, six thousand million million Angström units; and it would be equally inconvenient to talk of a hair having a diameter of, say, point seven or eight noughts one of a kilometre.

The Angström unit has, therefore, an arbitrary length of one ten thousand millionth part of a metre—that is, one ten millionth part of a millimetre. This arbitrary length enables us to talk of gamma rays in terms of tenths and hundredths of this unit; of *x* rays in tenths and small units; of ultra-violet light in figures round about three thousand, and of light up to about seven thousand. It is only when we get to infra-red that the numbers begin to get so big that it is worth while changing over from these units to actual millimetres or decimals of a millimetre. Thereafter, by keeping to the ordinary metric measurements, we eventually reach the well-known wave-lengths of 2 LO and 5 GB, and it is these latter wave-lengths that are employed in diathermy.

The relationship between the length of a wave and the frequency, or number of complete waves that can pass a given point in one second, can be made clear by a simple analogy. Suppose one is standing on a bridge watching a train composed of sleeping cars and ordinary cars passing underneath. The complete train will be travelling at a uniform rate, just as ether waves travel at a uniform rate, but the more lengthy sleeping cars will take a longer

* A lecture given to the Border Counties Branch of the British Medical Association.

time to emerge from under the bridge than the shorter ordinary cars. The sleeping cars would therefore have a longer "wave-length" and a lower "frequency," and the ordinary cars a shorter "wave-length" and greater "frequency."

The particles of dust on the surface of the cars would emerge, in comparison with the sleeping cars, at a very high frequency, but even then their frequency, in comparison with that of the sleeping cars, would not be as great as the differences between the frequency of gamma rays and those of wireless waves. It has been estimated that if the whole spectrum were set out to a scale in which one wave in the ultra-violet light block of waves was represented by one foot, and the whole block, therefore, by about 300 yards, it would be necessary to have a scale of more than one million miles in length. These facts give some idea of the minute proportion of the electro-magnetic spectrum that has produced such world-wide interest.

Apparatus for Making Ultra-violet Light.

In the course of a year I am frequently asked which is the best ultra-violet light lamp to buy. This question is impossible to answer without knowing all the circumstances under which the lamp is most likely to be used.

The common sources of ultra-violet light are:

1. The carbon arc.
2. The tungsten arc.
3. The mercury vapour arc.
4. Variations and combinations of 1 and 2, and arcs involving the use of other metals.

Each of these sources has its advocates, but I am of opinion that each has its own fields of utility, and I would not consider a department well equipped unless it contained representatives of at least 1, 2, and 3.

When arranging for the installation of one or more sources of ultra-violet light it is important, for the purposes of satisfactory and controlled work, that each lamp should have its own voltmeter and ammeter, so that the quantity of energy supplied can be kept fairly constant, or intelligently altered.

The carbon arcs are manufactured in various types, the commonest being:

(*a*) The 20-ampere arc lamps; three of these can, with a suitable main supply, be used in series if desired.
(*b*) The 75-ampere arc lamp.
(*c*) The Eidinow 30-ampere flame arc.
(*d*) The Finsen-Reyn lupus lamp.

Practically all the tungsten arcs rely upon swaged tungsten sticks, and only vary in such mechanical details as methods of adjusting the arc, reflectors, stands, etc.

The mercury vapour lamps, besides varying in detail as to the methods of cooling, are manufactured in five important types:

(*a*) The Cooper-Hewitt vacuum type.
(*b*) The atmospheric type.
(*c*) The Jesionek type.
(*d*) The Kromayer water-cooled type.
(*e*) A type suitable for use with an alternating current.

Each class of lamp has certain advantages and disadvantages, and these may be set out in tabular form.

1. *Carbon Arcs.*

Advantages.	Disadvantages.
1. Suitable for giving multiple treatments.	1. The 75-ampere type requires special motor. Current consumption great.
2. Function automatically and with little attention for long periods.	2. Tend to spit, splutter, make noises, and are affected by any draught.
3. Accidental overdoses produce less malaise than other types.	3. Smoke and smell somewhat, and carbon stick dirty.
4. Generate reasonable amount of heat at same time.	4. Slow in treatment.

2. *Tungsten Arcs.*

Advantages.	Disadvantages.
1. Consume only small quantity of current.	1. Much smoke and smell.
2. Simple in action.	2. Arcs require continuous watching and adjustment.
3. Rapid in treatment.	3. If much used, deposit a fine white dust over everything.
4. Rich in short wave-lengths.	4. Expense of tungsten sticks—5s. per inch (approximately).
5. Portable to patients, not difficult to use, and cheap.	

3. *Mercury Vapour Lamps.*

Advantages.	Disadvantages.
1. Consume only a small quantity of current.	1. Broken very easily; cost £10 to replace, and the vacuum type is liable to deteriorate.
2. Simple in action.	2. Work only when in one position—that is, the burner cannot be tipped.
3. Rapid in treatment.	
4. Rich in short wave-lengths.	
5. Clean and pleasant to use and almost inodorous.	

The above notes on the various types of lamp are extracted practically verbatim from a lecture I first gave some three years ago, and on looking through them I find so little to add to-day that I cannot help being struck by the fact that, despite various disguises, the intrinsic sources for the generation of ultra-violet light remain the same.

One technical point I should like to make is that the mercury vapour lamp is the only lamp that can be made to run easily, efficiently, and consistently on alternating current, which in the near future will be the current supplied to practically all districts. The mercury vapour lamp is therefore likely to find an increasing market, especially among medical practitioners, who will be content with one lamp.

Tests for Efficiency.

Various methods have been devised for the measurement of the actual quantity of ultra-violet light given to a patient, but one and all, I am glad to say, have had to be given up and dosage graded as a result of clinical experience. Dosage in ultra-violet light cannot be determined by mere rule of thumb; the response of individuals to this form of energy varies so widely that only by treating the individual, and not the average, can satisfactory results be obtained.

If, therefore, from clinical experience of the physical and pathological condition of a patient we decide that a dose just short of one that would produce an erythema is necessary, we can only ensure this by test doses *with* the lamp that is to be used; *on* small portions of the skin that is to be treated; and *at* the distance at which such treatment is to be carried out. This is the only method for measuring dosage that can safely be relied upon. If, in a busy department, other methods have to be employed, then initial dosage must be based on the assumption that each patient has a maximum degree of sensitivity, otherwise overdosage will inevitably occur.

Physical and Physiological Effects from Applications.

From the many theories of the physical effects of light and the consequent physiological response of the body, only one has emerged really clearly—namely, that cholesterol exists near the surface of the skin, and that irradiation of this manufactures vitamin D, which, when absorbed, improves the nutrition of the body. A number of workers are inclined to consider that this is the only effect of ultra-violet light on the body. But to limit the effects of ultra-violet light in this way is a mistake, for even a brief clinical experience with this method of treatment shows that the most striking feature of all is the variety of response shown by patients.

We know from the work of Colebrook, Hill, Eidinow, and others that, experimentally at any rate, temporary increase of the haemo-bactericidal properties of the blood can be secured. We also know that certain parts of the ultra-violet light spectrum are capable of inhibiting the growth, or even of killing certain kinds of bacteria. Careful observers have also suggested that these rays are capable of coagulating albumin, thereby destroying the superficial cells of the skin, with the result that a kind of protein shock may follow the absorption of these destroyed cells.

Professor Dixon has advanced the interesting theory that fluorescent substances in the skin, such as quiniodine, when irradiated, can become toxic to micro-organisms, and that this toxic substance can stimulate nerve endings. The best attitude to adopt to-day is, therefore, one of patient inquiry and close clinical observation, remembering, however, as Professor Dixon emphasized at Cardiff, that artificial ultra-violet light contains wave-lengths not found in natural sunlight, and is therefore essentially different.

Type Methods of Application.

In reviewing the very large number of cases that have now passed through the light department of the Royal Free Hospital it is seen that treatment by ultra-violet light is of four types. For want of a better terminology these may be called: (1) destructive, (2) counter-irritant, (3) stimulative, (4) sedative.

1. The destructive type of treatment is best exemplified by the Finsen-Reyn treatment of lupus and allied conditions. In lupus, unless the treatment is actually pushed until destruction of at least part of the irradiated tissue is secured, permanent improvement in the lupus nodules will not result. Similarly, destruction of lymphoid tissue in tonsils and throat can only be effectively achieved if the local dose is sufficiently strong to secure an intense inflammatory reaction, and it is obvious that a reaction of this nature is not to be preferred to clean surgery where this can be carried out.

2. In a counter-irritant dose a definite degree of erythema should be secured, and is indicated in exactly the class of case in which the old-fashioned mustard plaster would have been used. This type of effect can be secured locally—that is, over a single chronic joint—by means of the Kromayer lamp, which, applied directly to the skin, is capable of achieving an intense erythema in sixty seconds or less. Another method of producing the same effect, but over a wider area, is by exposing the body in areas of about eight inches square at a time, and producing a bright erythema after initial test measurement. This method is the method of Dr. Eidinow, and, according to his researches, produces the best haemo-bactericidal response.

3. Stimulative effects are apparently best produced by doses of ultra-violet light that do not produce an erythema, and may consequently be called sub-erythema doses. These may be given to large areas of the body. This method of treatment is one that would obviously be chosen, therefore, in conditions such as rickets and other diseases of malnutrition, and the carbon arc is the apparatus of choice.

4. Sedative effects are secured when the dose is about 25 per cent. of an erythema dose and the area of the skin exposed at each treatment is not more than about 10 per cent. of the body. Phthisical patients without pyrexia, cases of burns, and patients in physically debilitated states respond best to this method of treatment.

These methods have been set out very briefly, and exact details have purposely been avoided. Age, physical condition, race, disease, type of lamp employed, and many other variables have all to be taken into consideration. Nor has any attempt been made to bring out the effects of ultra-violet light on the body when its temperature is altered either by heating or cooling the skin before, during, or after treatment.

Conditions for which Ultra-violet Light is the Treatment of Choice, and Some Others that call for Special Remarks.

Having briefly reviewed the nature of ultra-violet light apparatus, tests for efficiency, and possible physiological effects, one comes naturally to a consideration of the conditions that are helped by this method of treatment. It is, however, just this aspect of the subject that presents the greatest difficulty. A study of the literature reveals the fact that nearly every disease has been claimed by one or another author to have been cured, or at any rate greatly relieved, by exposures to ultra-violet light. Such wide claims naturally bring the method into discredit, and are entirely unjustified and misleading.

Statistics of cures are extremely likely to lead to error unless most carefully handled, and unless they cover long periods of time and a very large number of cases. I have therefore prepared an alphabetical list of every ailment mentioned as having been treated by ultra-violet light in a number of books on the subject. I have "combed out" this list several times, rejecting many conditions, either because the evidence of the value of ultra-violet light was bad, or because my own personal experience convinced me that such treatment was a waste of time. In the final list I endeavoured to leave all those conditions in which (*a*) I have had, or seen, gratifying results; in which (*b*) I considered light should be tried with a reasonable prospect of benefit in a percentage of cases, and (*c*) about which I wished to sound a particular warning note.

Since the war the majority of medical practitioners have become familiar with the system of assessing disability as a percentage; and in my list I have noted against each disease my own estimation of the value of light treatment for that disease, 100 per cent. meaning that ultra-violet light is not only the treatment of choice but will yield a high percentage of cures, 50 per cent., that light is well worth trying and that a considerable number will benefit from its use, and so on down to zero. Even with this guide I have found it necessary to add some explanatory remarks.

The list probably contains diseases that might well have been "combed out," and omits others that could have been incorporated with advantage. Also I am fully aware that my attempted valuation is merely an abbreviated method of stating my own opinion and will not find universal agreement, but in the preparation of this list I have endeavoured to provide a general guide which errs on the side of caution.

LIST OF AILMENTS TREATED BY ULTRA-VIOLET LIGHT.

In the following list the type of treatment recommended appears immediately after the ailment, the author's assessment of the value of light treatment is shown in parentheses, and his remarks follow in separate paragraphs.

Alopecia. Counter-irritant. (50 per cent.)
Without an erythema lasting results appear never to be obtained and the scalp requires large doses. Treatment every five days is ample.

Asthma. Sedative. (15 per cent.)
Stimulative or counter-irritant doses help a few cases, but more frequently do harm.

Boils. Counter-irritant or even destructive. (10 per cent.)
The Kromayer lamp utilizing the quartz rods is best.

Bursitis. Counter-irritant. (75 per cent.)
Intense erythema is essential, and the Kromayer lamp should be used.

Burns. Sedative. (90 per cent.)
Two minutes of the mercury vapour lamp at 36 in. through a film of liquid paraffin is the best dose.

Catarrh. Stimulative. (40 per cent.)
One relies on the temporarily raised haemo-bactericidal properties of the blood to bring about a reaction to the infection.

Cervicitis. Counter-irritant. (20 per cent.)
Unless applied locally by means of Kromayer lamp and rods ultra-violet light seems to be of little benefit in this condition.

Conjunctivitis. Sedative. (20 per cent.)
Requires very special technique, and is not safe without practical instruction.

Corneal ulcers. Sedative. (20 per cent.)
Requires very special technique, and is not safe without practical instruction.

Debility. Sedative at first, stimulative later. (80 per cent.)
Probably the most responsive of all general ailments to ultra-violet light, provided erythema doses are avoided and there is no "master" ailment inhibiting benefit.

Dermatitis. Sedative. (5 per cent.)
Many of these cases unless carefully selected are made worse by ultra-violet light.

Fractures (delayed union of). Counter-irritant. (70 per cent.)
A very valuable adjunct in securing union; should be used in conjunction with cathodal galvanism.

Furunculosis. Stimulative. (75 per cent.)
The mercury vapour lamp yields the best results in these cases.

Glands (Tuberculous). Sedative. (90 per cent.)
Tuberculous glands react well in a high percentage of cases provided small initial doses are given.

Impetigo. Stimulative. (65 per cent.)
Results if observed over long periods are usually unsatisfactory, however good the initial response.

Lumbago. Counter-irritant. (30 per cent.)
A small percentage yields brilliant results provided the lumbago is not secondary to some other disease.

Lupus. Destructive. (95 per cent.)
Should only be treated where a Finsen-Reyn lamp treatment can be obtained under a skilled operator.

Marasmus. Sedative. (60 per cent.)
These children almost always require concomitant abdominal diathermy if benefit is to be rapid, genuine, and maintained.

Neuralgia. Neuritis.
Frequently exacerbated by ultra-violet light, and almost always by erythema doses.

Osteo-arthritis. Stimulative or counter-irritant. (35 per cent.)
Light should always be given a trial, particularly in patients of Jewish extraction, but many disappointments and failures occur.

Phthisis. Sedative. (35 per cent.)
Of all conditions the one that calls for the greatest care and watchfulness on the part of the physician, and records of weight, temperature, etc., should be kept.

Pruritus.
Results, despite fantastic claims to the contrary, are most disappointing.

Psoriasis. Stimulative. (15 per cent.)
Results, if observed over long periods, are usually unsatisfactory, however good the initial response.

Rickets. (*a*) Sedative, (*b*) Stimulative. (30 per cent.)
The efficient formation of vitamin D can best be started by small doses, especially in cases with extensive changes.

Synovitis.
No general guide can be laid down, as the nature and present condition of the synovitis are of prime importance in selecting treatment.

Ulcers. (*a*) Sedative, (*b*) Stimulative. (30 per cent.)
Moderately small doses should be tried first; if no response, chronic ulcers are well worth treating with counter-irritant doses.

The foregoing list, which even after many "comb-outs" still contains twenty-seven conditions, includes only seven in which I have estimated ultra-violet to have a value of 75 per cent. or over. That the valuation is approximately correct I have little doubt, just as I have complete faith that ultra-violet light treatment constitutes a valuable advance in modern therapy if a sober view is taken of its field of activity.

Conclusion.

Before drawing this review to an end I would like to refer briefly to a small investigation that has just been completed, thanks to the facilities given me by Professor McIlroy, and to the unsparing work of Dr. Bunbury, my late clinical assistant. In this investigation the mothers of every alternate baby born in the maternity wards at the Royal Free Hospital from January to June were given a series of doses of light, and record was kept of the weights of their babies at birth, at 11 days, at 6 weeks, and at 12 weeks. The remaining babies constituted the controls. In this way approximately 1 ton weight of babies have been observed. Though the final figures have not yet been collated it is possible to state that the increase of weight of sixty-five babies whose mothers had had irradiation was *plus* 28.5 per cent. at the end of six weeks, and of a similar non-irradiated group *plus* 29.3 per cent. All other figures are on the same scale, and indicate how careful one must be before claiming that "light treatment" is "wonderful" for nursing mothers or for any other purpose.

In the near future, however, I hope to see such genuine knowledge of this subject that prescriptions with full instructions as to lamp, distance, dose, area of skin exposed, etc., will be the rule rather than the rare exception. I hope also that when these prescriptions are not dispensed by the doctor they will be given in writing, as an ordinary prescription is given to a chemist, to workers on a national roll compiled as recommended in Cardiff by the Representative Body.

ABDOMINAL ANEURYSM CAUSING THROMBOSIS OF THE INFERIOR VENA CAVA.

BY

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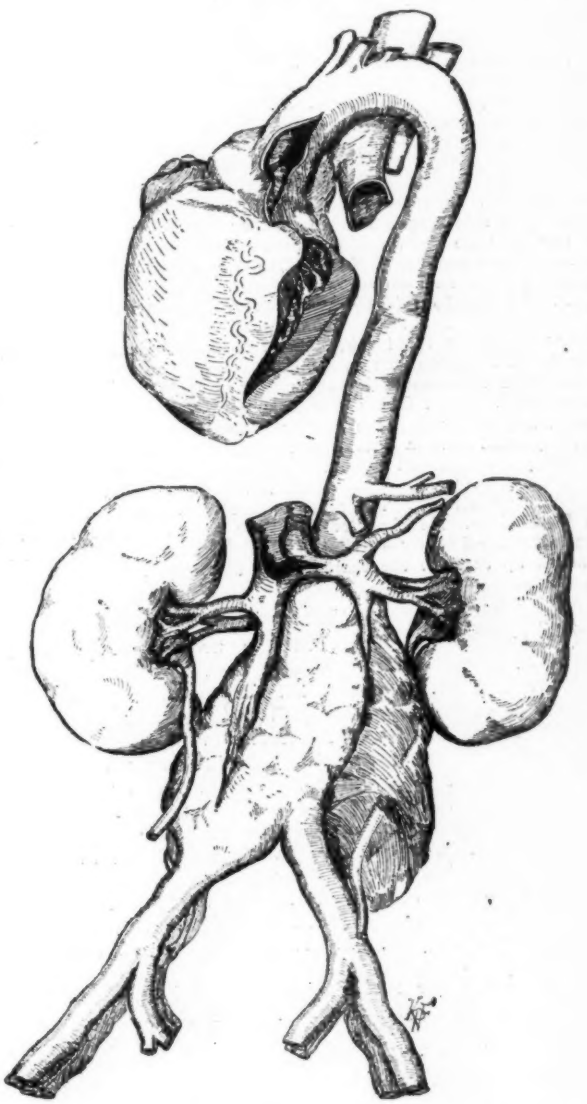
BIRMINGHAM.

THE following case is worthy of being recorded by virtue of the rarity of the condition, the very unusual course of the disease, and the difficulty experienced in reaching an accurate diagnosis until a catastrophe preceding a fatal termination made it obvious.

An engineer, aged 35, was admitted to the General Hospital, Birmingham, on August 21st, 1928, giving the following history. In 1912, at the age of 18, having previously been in good health, he was treated for iritis, which, he stated, followed a blow on the eye. The iritis cleared up rapidly under treatment, the nature of which is not known. Two years later he was admitted to this hospital, under the late Dr. Saundby, complaining of swelling of both legs, the onset being sudden and accompanied by pain in the legs. A diagnosis of bilateral femoral thrombosis was made, but no local or general cause was discovered. There was no clinical evidence of syphilis, but the Wassermann reaction was not determined. After some weeks the legs ulcerated and the oedema diminished. During the ensuing six years he had several transient recurrences of oedema, but no pain occurred with these attacks. In 1918 he began to have difficulty in walking of the type associated with intermittent claudication. This symptom persisted to a variable extent for the rest of his life. In 1920 large veins appeared over the abdomen and the ulcers healed. A year later he was readmitted, under Dr. Stanley Barnes, complaining of severe aching pains in the lower part of the back, and he was found to have the large superficial venous collateral circulation typical of obstruction of the inferior vena cava. He was tender over the lower lumbar spines, and had a bilateral extensor plantar response. The Wassermann reaction was negative. Thrombosis of the inferior vena cava, with a light degree of myelitis, was diagnosed, the myelitis being thought to be due to a local impoverishment of the blood supply secondary to the thrombosis. His pain disappeared under electrical treatment, and he returned to work. He remained free from pain until 1927,



when he had a recurrence of symptoms, of a short duration, similar in every respect to those of 1921.

Four weeks before admission he had a similar recurrence of pain of very great severity, especially located in the left side of the abdomen. The pa caused complete insomnia, and after two weeks of acute distress a swelling appeared in the left groin, followed by numbness and uselessness of the left leg. Violent nocturnal stabbing pain arose, shooting down the left thigh.

On examination (August 21st, 1928) extensive symmetrical pigmented papery scars were found on both legs. Large tortuous veins coursed over the abdomen from the groins to the substernal notch and the axillae, the blood flow in every case being upwards. A diffuse, solid, tender swelling occupied the left groin, and the left leg was flexed at the hip, any attempt at extension causing violent pain. No pulsation could be detected in the arteries of the lower extremities except a feeble intermittent pulse in the left posterior tibial. There was no oedema of the legs. The radial pulses were regular, rapid (120), and of high tension, the blood pressure being 160 systolic and 106 diastolic. The abdomen was

uniformly distended and tympanitic, prohibiting palpation of its contents. There were now no signs of myelitis.

Thirty-six hours after admission he had an attack of agonizing pain shooting down the left leg, the abdominal distension increased, and vomiting and collapse occurred. From that time until death the pain recurred at intervals, necessitating the frequent use of morphine, and the radial pulses became very thin and rapid, being imperceptible at times. The swelling in the groin gradually diminished, and the left common femoral pulse was felt for a few hours on the third day. On the fourth day a large mass became visible and palpable in the left side of the abdomen, extending from the costal margin to the iliac crest, and from the left kidney region to within three inches of the umbilicus, and exhibiting pulsation of an expansile character. A soft systolic murmur was audible over the swelling. An *x*-ray examination at this time showed no sign of abdominal aneurysm, but a lateral view was impossible. The swelling increased steadily in size until it filled the greater part of the left side of the abdomen and the meteorism subsided. A spreading discoloration of the skin of the left loin and groin appeared. The day before death, which occurred a week after admission, a collection of fluid was detected in the left pleural cavity, but it was not tapped, as the patient was dying.

At the necropsy he was found to have, at the bifurcation of the aorta, a large saccular aneurysm, which had eroded the bodies of the fourth and fifth lumbar vertebrae to within half an inch of the spinal canal. The posterior wall of the aneurysmal cavity was formed by this eroded surface, and on the left side the junction of the sac with the lip of the vertebral hollow had broken down, allowing the escape of blood into the retroperitoneal tissues, where a huge haematoma was formed. The swelling in the left groin was due to this extravasation of blood tracking down the psoas muscle. The inferior vena cava was indistinguishable two inches below the renal veins, where it became stretched out over the sac of the aneurysm as a fibrous band. The femoral and iliac veins were represented by thick fibrous cords partly recanalized by small vessels running outwards near the bifurcation of the aorta, apparently into the lumbar veins. The arteries of the legs were patent, but a loose mass of laminated clot was partly blocking the openings from the aneurysm into the common iliac arteries. The heart was normal, and the aorta showed no aortitis or atheroma. The other organs were examined and found to be healthy. No signs of syphilitic infection were found. In the left pleural cavity a quantity of blood was discovered that had tracked up through the crura of the diaphragm.

Comment.

The condition revealed at the necropsy explains the course of this distinctly puzzling case.

There can be little doubt that, fourteen years before death, a developing aneurysm of the abdominal aorta caused thrombosis of the inferior vena cava, with its subsequent train of symptoms, and, slowly eroding the vertebrae, gave rise to the attacks of lumbar pain. The myelitis and intermittent claudication must have been due to a deficient arterial supply from the vessels partly obstructed at their origins by the mass of clot in the sac. The sac then broke away from the vertebrae posteriorly, allowing leakage into the left psoas sheath. More extensive tearing preceding death caused the formation of a large false aneurysm, rendering the condition obvious for the first time.

Apart from the rarity of this condition several points of interest arise. In the first place the etiology of the aneurysm is difficult to determine. With the possible exception of the iritis no evidence, clinical or pathological, of syphilitic infection was present. The aneurysm itself, however, was of the saccular variety, and, in the absence of any possibility of occupational trauma, must be considered to be syphilitic. The onset before the age of 20 implies that the infection was congenital or neo-natal in origin, although no stigmata of congenital syphilis were present. It was unfortunate that the grave condition of the patient prohibited the taking of a second Wassermann reaction.

The slow progress, fourteen years, and the absence of lumbar pain, except for two short periods, are remarkable when the degree of bone involvement is considered.

Lastly the absence of any sign of erosion on an antero-posterior radiograph is noteworthy, and suggests the desirability of a lateral view in cases of "backache" of obscure causation.

I have to thank Dr. Stanley Barnes for permission to publish these notes.

OCCUPATIONAL PRESSURE NEURITIS OF THE DEEP PALMAR BRANCH OF THE ULNAR NERVE.

BY

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PRESSURE paralysis of the whole ulnar nerve is not uncommon, either as the result of pressure of the head of the humerus in the axilla following dislocation of the shoulder, or as the result of pressure upon the nerve during sleep, or under prolonged anaesthesia, from the forearm being kept acutely flexed at the elbow, or resting against the sharp edge or back of a chair. It is rare for the nerve to suffer from the results of pressure in the forearm itself, though a certain degree of neuritis may accompany Volkmann's ischaemic myositis as the result of too tight bandaging of the limb. As the result of prolonged pressure in the palm of the hand upon the median nerve branches I have seen numbness and partial anaesthesia of the three middle digits; and prolonged repeated pressure, as in floor scrubbers, or in gardeners, from the use of the trowel, may cause atrophy of the thenar eminence from an occupation neuritis of the branches of the median to the opponens and abductor pollicis.

Until recently I have never seen a pressure neuritis of the deep palmar branch of the ulnar, nor do I know of any description of such condition, but two cases which I saw within a week were so clearly limited to this nerve branch that possibly its apparent rarity may be due to want of recognition. Both cases were identical in the type of paralysis and in the complete absence of complaint of pain or of anaesthesia. The first patient was a bootmaker, whose constant use of one weapon, a knife, in cutting out the leather, had raised horny callosities of the skin of the palm on the inner side of the hypothenar eminence. The other was a motor-cyclist, whose hobby was long week-end rides on a high-powered machine, and whose right hand had suffered from his trick of gripping the handle-bar and controls too tightly. In each case the paralysis was limited to abduction and adduction of the three outer fingers, and adduction of the thumb. There was no wasting of either the thenar or hypothenar eminence, and no weakness of abduction or opposition of the thumb and little finger, but great difficulty was experienced in writing and in picking up a small coin or pin. Neither the first, second, nor third fingers could be moved laterally in abduction or adduction, nor could the little finger be adducted towards the ring finger, nor could the thumb be adducted towards the index, though abduction of the little finger could be performed normally.

It will be remembered that the deep palmar branch of the ulnar nerve supplies the adductor pollicis, the inner head of the flexor brevis pollicis, all the interossei, and the two inner lumbricals. The four dorsal interossei abduct the index and ring fingers away from the middle finger, and move the middle finger laterally, in both directions, while the outer two palmar interossei adduct the first and ring fingers towards the middle finger, and the third palmar interosseus adducts the little finger towards the ring finger. The deep palmar branch of the ulnar, after supplying the hypothenar muscles, passes deeply to follow the course of the deep palmar arch, crossing the metacarpal bones just below their heads. It is here that prolonged and repeated pressure against the inner side of the palm damages the deep palmar ulnar branch, and the recognition of this condition depends on the loss of the lateral movements of the three middle fingers, and of adduction of the thumb and of the little finger, while abduction of the little finger remains normal, and there is no pain or sensory paralysis. A rare abnormality in the nerve supply of the two outer dorsal interossei is sometimes met with, as I have seen on three occasions, when these are supplied by the median nerve, and consequently in such a case these two muscles would escape paralysis from pressure on the deep palmar ulnar branch.

PYORRHOEA ALVEOLARIS.*

BY

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THE object of the following remarks is to bring into focus such knowledge as we have on the subject of pyorrhoea, some important additions to which have been made in the last year or two. The inaccurate and vague nature of its title is perhaps justified partly by the lack of certainty that shrouds its pathology, partly by its very general use, and I shall not devote time to a description of its signs and symptoms. I shall deal only with the condition most usually understood by "pyorrhoea alveolaris," the special features of which are its general distribution over the mouth and its extreme chronicity. This limitation will exclude from my purview, on the one hand, localized conditions such as the gingivitis, so often seen round the front teeth in mouth-breathers, and inflammation due to local injury, such as tooth restorations, dentures, and orthodontic treatment; and, on the other hand, the acute general conditions such as may be caused by the chemical poisons mercury, phosphorus, and iodine, and special infections like those that produce ulcerative stomatitis, "trench gums," etc. We are left with a condition which, though the clinical picture varies from case to case, has as its lowest common denominator a progressive loss of the tooth-supporting structures, characterized by the two features already mentioned — general distribution and extreme chronicity.

PATHOLOGY.

Perhaps the most important fact in its pathology—which I think we may now safely regard as established—is a negative one: that is, that no specific organism plays the part of *causa causans*. It is now pretty generally accepted that the organisms present are those non-specific germs normally to be found in the mouth, generally streptococci and staphylococci, sometimes spirochaetes and fusiform bacilli. One qualification should perhaps be added. The formation of calculus is a constant and, as I shall show, a vitally important feature of the disease; and the work of Bulleid,[1] since confirmed by other workers, shows that the *Leptothrix buccalis* plays an essential part in calculus formation, and may thus perhaps in a sense be regarded as a prime cause in the production of pyorrhoea. Our conception of the sequence of the pathological changes involved has been much clarified by the researches carried out in the last few years at the Bland-Sutton Institute of the Middlesex Hospital by Warwick James and Counsell,[2] and by other workers, both in that institute and elsewhere. The most important points now made clear are:

(*a*) That the condition commences on the interdental septa and thence spreads both vertically into the periodontal membrane and laterally on to the labiobuccal and lingual surfaces.

(*b*) That the initial lesion consists in a deep proliferation of the gingival epithelium at the expense both of the gum corium and of the periodontal membrane, and that *pari passu* with this deep proliferation goes a superficial desquamation, resulting after a time in the formation of a "pocket," which thus, throughout the whole course of the disease, continues to be lined with epithelium. (The discovery that normal healthy gum is attached to the enamel[2] has compelled us to abandon the conception of a normal "trough" between the gum and the crown of the tooth.)

(*c*) That calculus or "tartar" is invariably present, though not always in sufficient quantity to be detected macroscopically.

(*d*) That absorption of the alveolar bone and periodontal membrane is secondary to the primary epithelial change.

(*e*) That the discharge of pus from the pockets instead of being, as the name of the disease implies, an essential feature, is to be regarded as a complication which, as we know from clinical experience, does not occur in a large proportion of cases. When it does occur it is due to a secondary infection of the pockets by pyogenic organisms with a positive chemiotaxis. Of course, when the pockets have become large a discharge of some sort can generally be expressed from them, but this is not normally pus, but the so-called materia alba, and consists chiefly of food debris and masses of putrefactive organisms.

CAUSATION.

It is still considered by some that in pyorrhoea we have to deal not with a single disease, but with a group of diseases linked together by the fact that they all attack the same organ. This is suggested partly by the variation in the clinical picture, partly by the difference of the bacterial flora in different cases, and partly by analogy with other groups of imperfectly understood diseases, such as chronic rheumatism and rheumatoid arthritis. But just as physicians now appear to regard rheumatoid arthritis and chronic rheumatism more and more as due in nearly all cases to infection from some focus in the body, so I think we are now justified in believing pyorrhoea to be a single disease, and it is certainly a great aid to treatment if we can take up this positive standpoint. The differences we observe in the clinical picture must, then, be regarded as due to a difference in the reaction of the patient rather than to a difference in the cause. As in all other diseases, causes divide themselves into a predisposing group and an exciting group. Most of the hoary controversies between the advocates of a general or systemic and those of a local origin of pyorrhoea have had their root in the failure to appreciate that both a predisposing or general and an exciting or local cause must always be present in every case.

Predisposing Causes.

The first of these is the essentially transient and temporary nature of the teeth and their supporting structures, a physiological fact due to the evolutionary history of the mammalia. The reptiles from which they sprang are polyphyodont—that is, they have a succession of teeth limited in numbers only by the life of the individual; each set after a short period of use is cast off and replaced by another. In that class of reptiles (the Theriodontia) from which it is believed that mammals were evolved we see that the life of each set of teeth became more and more prolonged, till in some species two sets were sufficient for the normal life of the individual. This arrangement became stereotyped in mammals, and all the sets of teeth after the second were suppressed. But throughout the mammalia, if an animal lives much beyond its normal allotted span, there is a tendency for its teeth to become lost, till it finally becomes edentulous. The exceptions are teeth of persistent growth, and if they are so arranged that no wear reduces their size these teeth continue to grow larger throughout life—for example, the tusks of elephants.

The loss of the permanent teeth due to wear and the atrophy of the tooth-supporting structures is, then, a normal feature of old age, and there is no clinical difference between the loss of teeth as a normal senile change and their premature loss from pyorrhoea in middle life. Of the reasons for this prematurity in the victims of pyorrhoea we are still ignorant. They may act either directly on the tooth-supporting structures, predisposing them to atrophy and absorption, or they may act by encouraging the deposit of calculus, the most vital of the exciting causes. They probably signify some biochemical change in lime metabolism, perhaps due to an altered endocrine activity. In this connexion F. W. Broderick[3] and Weston Price[4] have made some interesting suggestions, pointing out that pyorrhoea becomes more common as caries becomes less common—a contrast that applies not only to the age incidence, but to the type of tooth most severely attacked—and that pyorrhoea is a disease of lime excess in the blood, caries one of lime deficiency. But a coherent explanation of these matters has still to be worked out, and for the present we must be content to realize that there is undoubtedly some unknown predisposing cause which helps to determine why amongst individuals in whom the exciting causes are equally operative some are attacked by pyorrhoea and others remain immune.

Exciting Causes.

While the predisposing causes are still obscure and are not as yet susceptible to treatment, the exciting causes are now beginning to be understood, and, what is more

* A post-graduate lecture delivered in Birmingham on November 8th, 1928.

important, are to some extent capable of being controlled. They may be summed up in the single word "stagnation." Consider the pathological picture whose salient features I have described. The disease starts in the interdental spaces, the only position where even assiduous oral hygiene cannot entirely prevent stagnation from occurring. It is characterized by the deposit of calculus from the oral secretions, a deposit that can only occur when those secretions stagnate. It commences by a proliferation of epithelium, a process which all over the body denotes, except in the case of new growths (and often in this case also), a local irritant of some sort. The conclusion which obtrudes itself is that stagnation of the oral secretions in the interdental spaces—assisted, as we now believe, by the activities of the *Leptothrix buccalis*—produces a deposit of calculus; this, in its turn, acts as an irritant to the epithelium covering the interdental septum, causing it to proliferate deeply and desquamate superficially till a pocket is formed. A vicious circle is now established: the presence of the calculus and the existence of the pocket will still further encourage stagnation, not only of the oral secretions, but of fermentable food debris, and leads in turn to the formation of more calculus and deeper pockets, and the existence of a culture medium for bacterial growth. Infection from this, spreading along the blood vessels and lymphatics which pierce the crest of the bony interdental septa, produces absorption of the bone till every detail of the pathological picture is accounted for. If this conception covers the facts we have only to consider the factors which favour oral stagnation.

1. The first and most important of these is modern diet. The teeth and jaws of man were evolved before cooking was invented, and the friction of a natural diet on the gums, with the thorough mastication involved by it, promotes a flow of the oral and salivary secretions sufficient to prevent any of that oral stagnation which is to some extent inevitable with modern food. The point is well illustrated by comparative pathology. Wild animals rarely if ever suffer from pyorrhoea apart from loss of the teeth in extreme old age. Animals, however, in captivity and domestic species are not infrequently attacked by the disease owing to their artificial diet.

2. Irregular arrangement of the teeth and malocclusion, due either to faulty development of the jaws or to premature loss of teeth, will obviously encourage stagnation, and we find, in fact, that pyorrhoea is more common in such mouths, as it also is in mouths where the saliva is unduly viscid.

3. Dental restorations, whether fillings, crowns, bridges, or dentures which from faulty design or imperfect execution tend to trap food and impede a free flow of oral secretions, will obviously provide an exciting cause for pyorrhoea.

TREATMENT.

It is an axiom that all sound treatment of disease should be directed towards its cause, and not to its symptoms. Over the predisposing causes of pyorrhoea we have as yet no control, and if the conception of its exciting causes which I have put before you is well founded it follows that our sole aim in treatment should be the continued prevention of oral stagnation; and in fact the conception of oral stagnation as its cause rests not only on the evidence of pathology, but on the clinical fact that the therapeutic measures directed against it are the only ones that do produce a permanent result. What measures, therefore, are open to us? We cannot expect to see the adoption of a diet so coarse and astringent that it would be sufficient in itself, and the treatment possible divides itself into surgical and medical procedures.

Surgical Treatment.

The paramount surgical treatment is a complete removal of all the calculus, and this scaling, in the great majority of cases, will have to be repeated at regular intervals. It is obvious that, however thoroughly the calculus is removed, the cause that led to its deposit in the first instance will bring about the same condition again; and the medical measures I shall describe, directed to the removal of that cause, are seldom so thoroughly carried out or so perfectly effective that the need for subsequent scalings will not arise. Another surgical measure of great value is the abolition of any pockets that may exist—that is, the removal of the gum to the level of the floor of the pockets, by the knife, the cautery, or by escharotic drugs. The existence of pockets renders the task of preventing stagnation around the teeth, which is the goal of all our treatment, peculiarly difficult, and the clinical results of gum resection are uniformly excellent.

Medical Treatment.

The surgical measures I have mentioned, though they arrest the course of the disease for the time being, cannot be expected to effect a permanent cure. The patient will be no less liable to oral stagnation, a fresh deposit of calculus, and a recrudescence of the disease than he was before, and the surgical measures must be followed up by some daily measure of oral hygiene which will, as far as is humanly possible, prevent a recrudescence of pyorrhoea by preventing oral stagnation. No measure that is not repeated daily can hope to maintain a permanent cure, and it follows that effective medical treatment can only be undertaken by the patient, and will be effective in proportion to the diligence we can persuade him to practise.

There are three methods I have tried in my own practice: (1) daily irrigation of the gums and interdental spaces with a powerful spray from an atomizer; (2) daily cleansing of interdental spaces, and any pockets in the gum that are not resected, with hydrogen peroxide applied through a fine root syringe; and (3) saline massage. The salt promotes a flow of serum into the pockets and interdental spaces by osmosis; the massage first squeezes this out and then causes the pockets to fill up again with serum. Stagnant areas are thus sluiced out by the patient's own serum.

Daily medical treatment by the patient himself somewhat on these lines is, I believe, the only treatment likely to give results that are permanently satisfactory. The other forms of medical treatment are mostly aimed at what we now know to be complications of the disease, such as infection of the pockets with pyogenic organisms, rather than at the primary condition; and conditions such as pus formation usually disappear spontaneously in response to the measures I have mentioned. If they do not, then a course of special treatment may sometimes do good—either the old method of treating the pockets with caustic drugs, or a course of vaccine therapy, or ionic medication, or treatment with high frequency current. Nothing is more easy than to effect a cure of pyorrhoea if by cure is meant an arrest of pus formation. Only too often the so-called cures have meant little more than success in eliminating this particular complication of the disease for the time being.

PYORRHOEA AND SYSTEMIC INFECTION.

The time is not far distant when physicians were addicted to ordering the wholesale extraction of teeth attacked by pyorrhoea, in the interest of the patient's health. To-day the attitude of medical men appears to have changed, and we find their attention directed to teeth with non-vital pulps as the most important dental factor in general disease, together with an implicit reliance on x rays as the only reliable method of diagnosis. Except that I believe radiographic evidence, taken alone, to be wholly inadequate and often misleading, I am fully in agreement with this attitude. The cases in my own clinical experience where teeth with pyorrhoea have damaged the general health are an insignificant minority compared with the vastly greater number where such damage has been wrought by non-vital teeth, and I find that physicians with sufficient knowledge of dental pathology clearly to distinguish between the two have the same experience. Weston Price, in the most extensive and important study of the dental factor in systemic disease yet published,[4] goes even further and appears to regard active pyorrhoea as evidence of the establishment of a local quarantine or immunity reaction to the rheumatic group

of diseases. Stanley Colyer has published a book[5] taking the opposite view, and regards the alveolar bone in all cases of pyorrhoea, even where no pus is obvious, as infected. Unfortunately, in the cases he cites as evidence of improvement in health following extraction, he fails to distinguish between non-vital and vital teeth, and this seriously impairs their value. Lazarus-Barlow[6] found that over 80 per cent. of cultures taken from the bone below the floor of a pyorrhoea pocket were sterile.

While it remains true that active pyorrhoea does not adversely affect the general health as much as was formerly believed, and far less frequently than apical infections, it is not to be thought that it is wholly innocuous. Its ill effects are most often seen in diseases of the digestive tract, as its toxic products drain into the mouth rather than into the blood; very few cases have occurred in my clinical practice where diseases of the rheumatic group were produced.

The relatively innocuous nature of pyorrhoea compared with apical infections is usually explained as the difference between an open and a closed infection, the toxic products of pyorrhoea draining freely into the mouth and the bacteria being killed by the gastric juices, while the toxic products of apical infections must of necessity find their way into the system. But there is another and more significant difference between the two conditions. An infection of the gums is freely exposed to all the defensive mechanisms of the body, phagocytes, antibodies, and antitoxins, which in most cases constitute an adequate defence. But an infected pulp chamber constitutes a stronghold for bacterial growth, completely protected from all the natural defence forces of the body, where germs can multiply and discharge their toxins and themselves into the system with impunity.

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NOTES ON A PEDIGREE OF AMAUROTIC FAMILY IDIOCY (TAY-SACHS DISEASE).

BY

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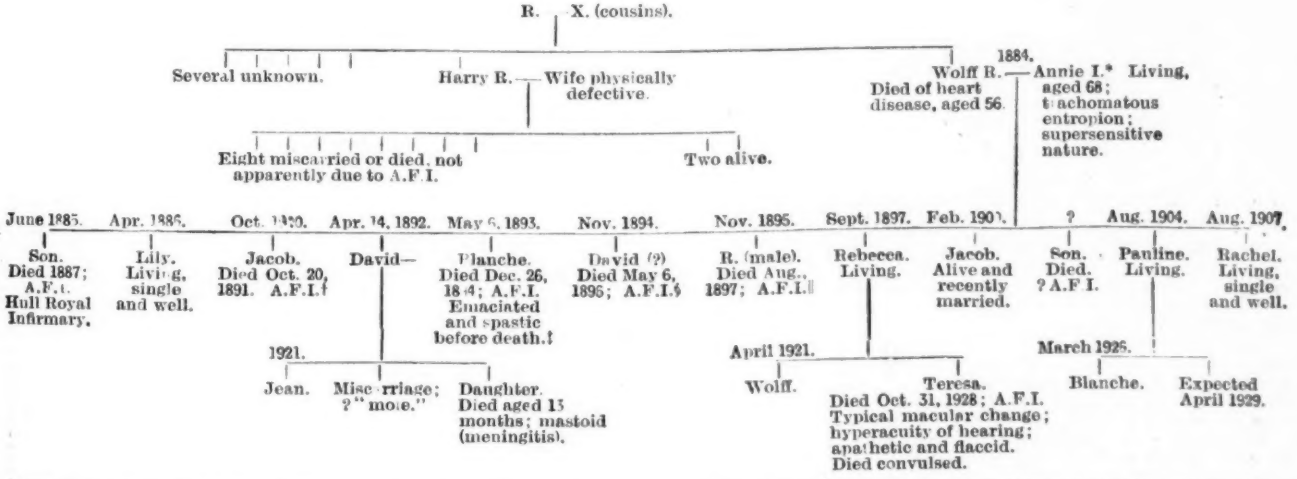
INTEREST in this disease appears to have waned during the past twenty-eight years, and references to the condition are as few during this period as they are plentiful in the twenty years succeeding its first description by Waren Tay in 1881. The condition has apparently been shelved as incurable, largely because it seems to develop prenatally, and it has been impossible previously to forecast that the offspring of any particular Jewess was liable to this affliction.

It has been my good fortune to see at the Hull Victoria Hospital for Sick Children a case of this disease which has proved on investigation to represent the second generation of the classical R—— family. Their vicissitudes were recorded by Mr. Kingdon of Nottingham; of twelve children, six died of this complaint, and in two cases extensive *post-mortem* examinations were performed by Dr. Risien Russell.

Of the remaining six, the eldest daughter is unmarried; the elder son has one living child, one pregnancy terminated apparently in a "mole," and one other child died of meningitis secondary to mastoid trouble. My patient was the second child of the next daughter. I do not intend to report the case fully, as it followed so typically the abler description of its uncles and aunt published by Mr. Kingdon in Volume 80 of the *Transactions* of the Medico-Chirurgical Society. Though flaccid throughout, the patient died convulsed. A boy born to the same mother seven years ago is alive and well.

The next son has married recently, shortly before he knew of the dangerous heredity, and he is disinclined to procreate on this account. The next living member of the family is a woman, who has a healthy daughter aged 2½ years, and is pregnant for the second time, expecting to be delivered in April. The last is a woman of 21, and unmarried.

My object in publishing this pedigree is twofold. First, I consider that the appearance of the disease in the second generation is of general interest, and if it should occur elsewhere in the family it will be important to determine whether or no the succession is solely through the distaff line. Secondly, I desire the consensus of opinion of my colleagues on the manner they think best of meeting the situation. Should Jacob practise rigorous contraception? Should Rachel be advised against matrimony? Will the profession offer any suggestions as to the ante- and post-natal treatment of Pauline's expected child, and any future pregnancies of hers, Rebecca's, or Rachel's if she marries? Kingdon suggested that the dietary of the mother be investigated, and that the babies be weaned from birth, but that was at a time when the disease was regarded as familial rather than hereditary.


R. — X. (cousins).
Several unknown.
Harry R. — Wife physically defective.
Eight miscarried or died, not apparently due to A.F.I.
Two alive.
1884.
Wolff R. — Annie I.* Living, aged 68; trachomatous entropion; supersensitive nature.
Died of heart disease, aged 56.
June 1885. Son. Died 1887; A.F.I. Hull Royal Infirmary.
Apr. 1886. Lily. Living, single and well.
Oct. 1890. Jacob. Died Oct. 20, 1891. A.F.I.†
Apr. 14, 1892. David—
May 6, 1893. Blanche. Died Dec. 26, 1894; A.F.I. Emaciated and spastic before death.‡
Nov. 1894. David (?) Died May 6, 1895; A.F.I.§
Nov. 1895. R. (male). Died Aug., 1897; A.F.I.‖
Sept. 1897. Rebecca. Living.
Feb. 1901. Jacob. Alive and recently married.
? Son. Died. ? A.F.I.
Aug. 1904. Pauline. Living.
Aug. 1907. Rachel. Living, single and well.
1921. Jean. Miscarriage; ? "mole." Daughter. Died aged 13 months; mastoid (meningitis).
April 1921. Wolff. Teresa. Died Oct. 31, 1928; A.F.I. Typical macular change; hyperacuity of hearing; apathetic and flaccid. Died convulsed.
March 1926. Blanche. Expected April 1929.

*Other members of this family have no abnormal history so far as known.

†*Transactions* of the Ophthalmological Society, vol. xii, p. 126. Quoted in the *Transactions* of the Royal Medical and Chirurgical Society of London, lxxx, 87.

‡*Transactions* of the Ophthalmological Society, xlv, 129. *Transactions* of the Medico-Chirurgical Society, lxxx, 87.

§*Transactions* of the Royal Medical and Chirurgical Society of London, lxxx, 87.

‖Ibid., Addendum.

COMPLETE INVERSION OF THE URINARY BLADDER.

BY

C. BURGOYNE PASLEY, F.R.C.S.I.,

CHIEF SURGEON, FEDERATED MALAY STATES.

COMPLETE inversion of the urinary bladder is a condition of such extreme rarity that the publication of the clinical details in such a case would seem to be warranted.

An undersized, rather poorly nourished Chinese girl, aged 15, with a facies suggestive of hereditary syphilis, and mentally very stupid, was admitted to hospital on August 10th, 1927.

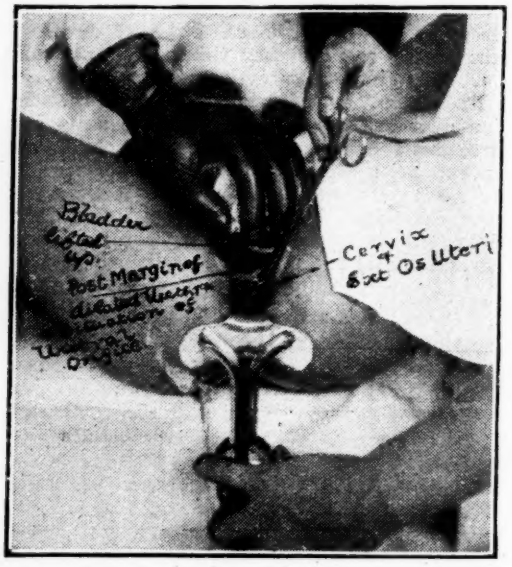
History.—About two months previously the patient had noticed a small and tender swelling between the vulvae; this she had "pushed back." There was apparently a recurrence some five weeks later. About two days before her admission she was carrying two heavy casks of water when she felt something "give." On reaching home she found a large mass between the vulvae. On the following day she remained in bed and attempted to push back the mass, but failed.

On admission to hospital she was seen and examined by the lady medical officer, Dr. Hewitson, who concluded that the protruding mass was possibly the urinary bladder. Shortly afterwards I saw her, and, under chloroform anaesthesia, made a thorough examination.

Condition on Admission.—I found that the protruding mass was without doubt the entire urinary bladder inverted. The mucous membrane was intensely red and inflamed, bleeding on palpation. On gently raising the mass urine could be seen flowing from the ureteral orifices, which were visible just inside the posterior margin of the enormously dilated urethra. Vaginal examination showed that the hymen was absent, the cervix normal, and the uterus small and normally placed. The anterior fornix was obliterated.

Having thoroughly cleansed the parts with warm sterile saline, I returned the protruding mass by steady and gentle pressure. Digital examination proved that no growth of any sort was present. The urethra easily admitted my thumb. The patient was put to bed with buttocks raised, and for a few days the bladder was washed out with 1 in 2,000 acriflavine. She was kept in the recumbent position for three weeks, by the end of which time she seemed able to retain her urine.

At her own request she was permitted to leave hospital, and was instructed to return at once should inversion recur. During her stay in hospital her pulse and temperature remained

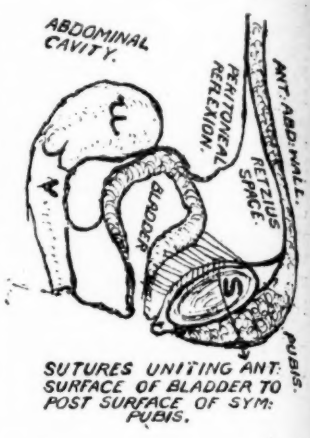


normal; the urine also was normal. I was most disappointed not to have been able at this time to obtain photographs of the condition.

The patient was readmitted to hospital on September 23rd suffering from bronchitis and subtertian malaria. The next day I was sent for, as, following a severe fit of coughing, the bladder had again inverted. She was anaesthetized and photographs were obtained which clearly showed the conditions present.

The bladder was again replaced and the patient was returned to bed, quinine in 10-grain doses being ordered.

It seemed evident that some form of operation was required to prevent further recurrence. A search through all available literature failed to give any information, save an article entitled "Prolapse of urethra in female children," by Thomas N. Hepburn, F.A.C.S., published in the *American Journal of Surgery* for March, 1927 (p. 400), wherein the writer very clearly describes an operation. I determined to try a similar technique.



On October 10th, under general anaesthesia, the space of Retzius was freely opened up. The peritoneal reflection from the anterior surface of the bladder was defined and drawn upwards. The bladder was gently grasped with rubber-protected forceps and drawn upwards. The posterior aspect of the symphysis pubis was lightly scarified. The anterior surface of the neck of the bladder was rubbed with gauze and then firmly sutured to the pubis. The wound was closed without drainage, and dry dressings were applied. It was noticed that this procedure had the effect of drawing up the urethra, which before operation was pouching.

The patient suffered from considerable post-operative vomiting, but no sign of prolapse of the urethra or bladder occurred.

It will be interesting to see if this operation cures the condition. I should be thankful for any information bearing on the case, both as regards incidence, causes, and treatment.

A CHYLOUS MESENTERIC CYST.

BY

GILBERT I. WILSON, B.M., B.CH.OXON., F.R.C.S.ED.,

LATE SENIOR HOUSE-SURGEON, MANSFIELD AND DISTRICT HOSPITAL, NOTTS.

THE following case is noteworthy on account of its rarity, and of the satisfactory immediate result of conservative operative treatment.

A boy, aged 8, was admitted to Mansfield Hospital on April 3rd, 1928, from a neighbouring sanatorium "for relief by laparotomy of ascites due to tuberculous peritonitis."

The first symptoms had been noticed two years previously. The boy was developing a ravenous appetite, especially marked in the early part of the day, and was unusually sleepy in the evening. He would "eat all day"—a mixed diet with an excess of bread, butter, and potatoes—and then sleep ten or eleven hours each night. Shortly after this the abdomen was observed to be rather large, but the increase had been much more marked during the last six months, and it was not until this period that the boy became thin. The bowels were opened each morning urgently following a slight griping sensation; nothing abnormal was noted in the stools. The boy played games, and his general health remained fairly good.

Previous to these symptoms he had been an exceptionally healthy child, being 11 lb. at birth, and but slightly troubled by measles and chicken-pox. When 6 years old (six months before anything of the present trouble was noticed) he broke his leg, but no concomitant injury to the abdomen or back was noted or remembered.

Condition on Admission.—The patient was very thin. No irregularities were palpated in the very large abdomen, but percussion revealed that the umbilical region was as dull as the flanks, the only resonant area being in the epigastrium. There was no thought, however, of questioning the diagnosis.

Operation.—The abdomen was opened through a subumbilical incision, but no fluid was found. Across a soft, white, cystic swelling was stretched a band of small gut, rather bluish in colour. By palpation the swelling was found to extend upwards, pushing the transverse colon, great omentum, and stomach well up under the diaphragm. Laterally the cyst extended behind both ascending and descending portions of the colon; it was pouched in the flanks, thereby becoming trilocular, but all parts communicated freely. In the pelvis were coils of gut. The cyst wall was uniform, and by pinching it was found to be extraordinarily thin. The contents appeared to be opalescent in thin layers, white in thicker, and a diagnosis of chylous mesenteric cyst was arrived at. A small opening was made, and four and a half pints of fluid, exactly resembling milk, was drained off. The opening was closed by ligature, the cyst wall being so thin that the finest stitch holes caused leaks. A certain quantity of fluid was left behind, probably less than a pint. The abdomen was closed. Convalescence was uneventful.

Analysis of the fluid gave the following main facts: specific gravity 1,013; faintly alkaline; total solids 9.58 per cent.—ash 0.9 per cent. (sodium chloride, trace of potash and phosphates), fat 4.05 per cent., protein 3.50 per cent. (almost wholly serum globulin and albumin); there were traces of blood cells, with an excess of mononuclear types; no organisms were found. This is within the limits of composition of pure chyle. The fat was in a very finely divided state, a many times finer emulsion than cow's milk.

Subsequent Progress.—The boy left for home on the sixteenth day, a detailed diet having been prescribed, largely, but not wholly, fat-free. He was a most depressing sight—pinched face, splayed-out ribs over a flaccid, rather scaphoid, abdomen, and match-like legs. Five weeks later (May 22nd, 1928) the change in the child surprised me, and I regretted not having taken the weight (now 4 st. 3½ lb.) and the waist measurement (now 26 in.) previously. The thorax and abdomen were within normal limits of shape, a moderate layer of subcutaneous fat had appeared, and the boy was now of lively disposition. The clinical signs of cyst or fluid were doubtfully obtainable.

Nine weeks later (July 28th, 1928) the weight was 4 st. 5¼ lb. and the waist 26¼ in. There seemed now to be definite evidence of a flaccid cyst in the abdomen, and I should think that the fluid is collecting again very slowly.

In discussing the probable origin of the cyst I must express my great indebtedness to Dr. G. Payling Wright of University College Hospital for references to the literature and many suggestions of practical value.

The cyst may be classed broadly as mesenteric, and may, therefore, be primarily chylous, or due to an effusion of chyle into a preformed cyst. C. N. Dowd[1] reviews the subject, and is of opinion that the latter view is correct. If this is so, "false" cysts—inflammatory, parasitic, neoplastic, and dermoid—can hardly be applicable to this case, leaving traumatic and "true" mesenteric cysts only to be discussed.

Of the "true" cysts those suspected to be of urogenital (Wolffian) or enteric origin are lined with epithelium (sometimes very flattened), and although this has been described, the present cyst was so thin-walled, and under such low tension, that there can be little doubt that the wall consisted solely of endothelium and the barest supporting framework of areolar and fibrous tissue. Therefore, it would approach the lymphatic cyst (comparable to a cystic hygroma, which it did not in the least resemble), or a mesocolic cyst (formed of layers of mesentery which failed to fuse after the rotation of the gut in the embryo). Theoretically the superficial position of the cyst, lying against the small gut anterior to the mesenteric vessels, fits in with the mesocolic theory, but I have found no definite evidence that such cysts ever occur.

A traumatic cyst should be associated with adhesions, which were not found. Such cysts are said to occur after a blow on the spine, causing rupture of the receptaculum chyli or thoracic duct. A novel suggestion may be of interest in this connexion—namely, that the condition was one of retroperitoneal effusion of chyle held up by the more firm attachments of the peritoneum to the diaphragmatic, pelvic, and transversalis fascias than to the lumbar and perinephric fascias. However, I have not been able to confirm that these attachments are more firm.

There remains the view that the condition might be primarily chylous—that is, a cystic dilatation of a chylous lymphatic duct, due to obstruction possibly from traumatic or tuberculous fibrosis. This, a simple view at first sight, presents the difficulty that there is such a free anastomosis between ducts; even the entrance to the receptaculum chyli is usually by two or three channels. Had a cure been obtained, the only reasonable explanation would have been that a partial valvular obstruction in a duct had been overcome by complete relief of tension, but a cure now seems a doubtful possibility.

One can therefore only consider three likely explanations: (1) effusion into a preformed mesocolic cyst; (2) a true obstructive cystic dilatation; (3) a retroperitoneal effusion. In view of the very extensive nature of the cyst the last view cannot be put aside lightly. Finally, as the condition may require further surgical intervention, suggestions as to procedure and investigation at the time would be of considerable value.

I am indebted to the kindness of Dr. Arthur Hummard for permission to publish this case.

REFERENCE.

[1] *Annals of Surgery*, 1900, vol. 32, p. 515.

ELECTROTHERAPY IN NON-GONOCOCCAL CERVICITIS.

BY

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MEDICAL OFFICER IN CHARGE OF ELECTRO-THERAPEUTIC DEPARTMENT, ROYAL NORTHERN HOSPITAL.

By means of the electrical treatment detailed below it is usually possible to clear up cases of discharge from the cervix and urethra where douches and other means have failed.

In hospital practice diathermy is applied to the cervix and urethra as a routine for the first four sessions, Dr. Cumberbatch's special technique being employed. This kills any gonococci which may remain and stimulates internal secretions to combat toxins, but is not essential in non-gonococcal cases. During the next six sessions a well-lubricated zinc or copper electrode an inch and a half long by three-sixteenths of an inch in diameter (at the end of which is placed a circular disc to insulate the parts round the introitus urethrae) is introduced into the urethra; an indifferent pad electrode, eight inches by six, and half an inch thick, soaked in salt solution, being placed over the lower abdomen. The urethral electrode being steadied by a suitable stand the cables are connected to the electrodes and the galvanic current slowly turned on till a strength of 5 to 7 ma. is reached. The positive pole is always connected to the urethral electrode, and after twenty minutes' treatment the galvanic current is slowly turned off. More than 5 ma. should not be used at first as the patient may complain afterwards of pain on micturition.

When treatment of the urethra has been completed a speculum is introduced into the vagina till the cervix is clearly seen, and an electrode of the same shape and material, but a foot in length, is passed down the speculum and introduced gently about three-quarters of an inch into the cervix; if endometritis is present it may pass an inch or more. A piece of rubber tubing is slipped over the electrode as far as the cervix, thus preventing any short-circuiting with the speculum or possible burn of the vagina. The indifferent electrode being in position as before, the negative cable is attached to the electrode passing to the cervix and a current of 15 to 25 ma. passed for twenty minutes. This not only causes copious secretion from the cervical mucous membrane and draining away of pathological products, but has a caustic action as well.

At the last two sessions, by which time the discharge has become less or nearly ceased, the positive cable is applied to the electrode in the cervix, and the current turned on till 40 ma. is slowly reached. This current is passed for twenty minutes and slowly turned off. The result is to dry up the cervical secretion, and at the same time (according to type of electrode used) introduce into the cervix zinc or copper ions, both of which are strongly antiseptic. The average number of treatments necessary is about a dozen, but this will depend on the amount of cervical and urethral inflammation and induration, which within limits vary with the duration of the discharge. This brings out the importance of early treatment, which makes for a good prognosis. In every such case it is essential to treat the urethra.

I will illustrate the results of treatment by giving two typical cases.

CASE I.

A woman, aged 21, complained of discharge and frequency of micturition (the date of onset was not stated). Treatment was begun at the Royal Northern Hospital on September 13th, 1926. On examination the cervix was seen to be congested and indurated, maculae were present on the vulva, and pus exuded from the cervix. A smear showed no gonococci. Only slight improvement followed treatment with silver nitrate douches. She was sent to my department on November 15th, 1926. The urethra was swollen, the cervix red and swollen, and thick pus was obtained from both. Three treatments by diathermy caused the cervix to become less red and swollen. Ionization was performed weekly till December 26th (eight treatments), when no pus was to be seen in either cervix or urethra. The patient reported in a fortnight and again in a month, and at the last examination some chronic thickening of the cervix was found, with rather excessive clear mucous discharge, from which the patient had no discomfort whatever. No pus was found, and cultures from the cervix were negative.

CASE II.

A married woman was treated for cervical discharge six years previous to September, 1926, when she came to the Royal Northern Hospital complaining of burning pain in vulva and vagina; she had noticed no discharge. A smear taken showed no gonococci. After douches had failed to benefit the patient she was sent to my department on November 1st, 1926. I found the cervix red and swollen, with pus round the os and on the vaginal walls. On November 15th a small erosion was seen. Eight treatments by diathermy cleared up the erosion and the pus became less thick, though there was now some to be seen in the urethra. After four treatments by ionization no pus was seen in the urethra and the cervix was much less red and swollen. After eight treatments there was complete cessation of discharge and the cervix appeared normal.

The patient reported a month later that she felt quite well; the cervix and urethra both appeared quite normal; no chronic thickening was seen.

I could only treat these cases once a week, but twice a week would be more efficient and would lessen the number of sessions required. I hope these notes may be of service to those in general practice who use a galvanic apparatus.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PSEUDOCYST OF THE PANCREAS.

PSEUDOCYSTS of the pancreas are undoubtedly rare. The following clinical details of a case therefore seem worthy of record.

A boy, aged 7 years, had the upper part of his abdomen crushed by a cart. He was taken to another hospital, and was detained. The following two days he vomited some bright red blood, but otherwise his condition was normal. *X*-ray examination of his chest revealed no bony injury, and after being kept under observation for one week he was discharged apparently normal. Ten days later he had an attack of vomiting, and the following day he had pain in the left side of his abdomen. The vomit this time showed no traces of blood. He was brought to this hospital, and on examination the following condition was revealed.

A large swelling was present in the left epigastric region; it was tender on palpation, was rounded off, and extended almost to the umbilicus. The percussion note was dull, and the stomach outline could be made out at its upper border. The tumour therefore occupied the position of the lesser peritoneal sac. The temperature was 100° F., pulse 120. Two days later Mr. Irwin operated. The abdomen was opened by a left rectus incision under local anaesthesia. The transverse colon was greatly distended, and in order to explore the lesser peritoneal cavity ether was resorted to. The mass was found to be an intraperitoneal pseudocyst of the pancreas occupying the lesser sac. It was approached through the gastrocolic omentum. The wall was incised, and the contents of the cavity (blood-stained fluid and a coagulated mucilaginous substance) evacuated. A cavity about the size of a hazel-nut was present in the substance of the pancreas. This cavity was covered by a thin membrane, and had evidently been a haematoma. A drainage tube was left in for two weeks, during which time a clear fluid discharged in decreasing amounts. This fluid on examination contained pancreatic enzymes. The boy made a complete recovery in five weeks.

The origin of the cyst was probably a small haematoma in the substance of the pancreas, caused by injury to the upper abdomen. The haematoma had occupied the cavity in the substance of the pancreas revealed at operation. This would be in agreement with the original article on the subject by Jordan Lloyd in the *British Medical Journal* (1892, ii, p. 1051). He was the first to point out that the majority of such cysts following abdominal injury were not true retention cysts of the pancreas. He reported two cases, both occurring after abdominal injury—one three weeks and the other three months. Both cases had been discharged from hospital, and were readmitted subsequently. He believed both to be associated with injury to the pancreas, probably by pressure against the first lumbar vertebra, but in neither case was the pancreas specially examined for evidence of injury.

Of 117 cases collected from the literature by Körte in 1911 there was a definite history of abdominal injury in 33. Among 41 cases collected by Judd in the records of the Mayo Clinic trauma seemed to be an etiological factor in one case only, the cyst occurring two months after the injury. Lazarus produced a cyst by crushing the pancreas of a dog. A haematoma was first formed, which later became an encapsuled cyst containing 100 c.cm. of fluid.

I am indebted to Mr. Irwin for permission to publish this case.

H. A. WARNOCK, M.B., B.Sc.,
Ulster Hospital for Children and Women, Belfast.

VARIATIONS IN THE BLOOD UREA CONTENT.

THE following case is of interest as showing the remarkable variation possible in the blood urea content within a relatively short space of time.

A woman, aged 55, was admitted to St. Luke's Hospital, Bradford, on July 10th, 1928, with a history of renal colic, haematuria, and the passage of gravel. The pain was referred to the left side, but *x*-ray examination showed a large number of stones in the right kidney, with the left kidney area quite clear. Next day, at an operation, the right kidney was removed. The kidney was enlarged and its pelvis and calyces were almost solidly filled with calculi of varying size and shape. There was so little kidney substance present that the kidney was to all intents functionally useless. Subsequently the patient had a normal convalescence until August 14th, when she complained of some left-sided abdominal pain; the temperature rose to 102° F., and the passage of urine ceased completely. On August 16th no more urine had been passed, and the blood urea was 48 mg. per 100 c.cm. During the next week not more than 3 ounces of blood-stained urine were passed, and the general condition became steadily worse with progressive headache, drowsiness, and vomiting. There was no improvement in spite of treatment by the usual methods. On August 21st the blood urea was 360 mg. per 100 c.cm. During the next week no more urine was passed, and catheterization showed that no urine was present in the bladder. The symptoms became more distressing, but there were no signs of twitchings or commencing uraemic convulsions. On August 28th the blood urea had risen to 500 mg. per 100 c.cm. Then there came a dramatic change in the condition. That day a little blood-stained urine and some stones were passed per urethram, and this was followed by intense diuresis—over 15½ pints of urine being passed in the next sixteen hours. Subsequently there was a steady improvement in the general condition, and urine was passed normally. On September 4th the blood urea was 25 mg. per 100 c.cm.; on September 12th it was 30 mg. per 100 c.cm., and the patient was discharged in a satisfactory condition.

The chief features about this case are the steady rise in the blood urea associated with the progressive development of uraemic symptoms and the remarkable fall in the space of one week from 500 to 25 mg. per 100 c.cm. associated with the diuresis. It is to be noted that this fall was accomplished with one kidney, a tribute to its functional capacity.

I am indebted to Mr. Hughes for permission to publish this case, and to Dr. Ritchie for the blood urea estimations.

Bradford. GEORGE BROWN, M.B., Ch.B.Ed.

IDIOSYNCRASY TO QUININE INJECTIONS.

THE following case of quinine idiosyncrasy in which rather alarming symptoms occurred after intravenous injection for varicose veins, seems worthy of note.

A married woman, aged 65, presented herself as an out-patient at the Skin Department of the Edinburgh Royal Infirmary suffering from varicose dermatitis, and it was decided to treat the causal condition—namely, the varicose veins. Accordingly 1 c.cm. of quinine and urethane solution, containing 0.13 gram quinine hydrochloride and 0.065 gram urethane, was injected into a varix in the lower third of the right leg above the area of dermatitis. Almost immediately after the injection the patient began to cough, and five minutes later she collapsed, falling from a chair to the floor. She was extremely cyanosed, and complained of inability to breathe and a sense of constriction of the chest. The pulse could hardly be felt, and was irregular in time and force. A subcutaneous injection was given of strychnine 1/40 grain and digitalin 1/100 grain. She gradually improved, and her first question was whether quinine had been given. She stated that twenty-four years previously she had taken quinine by the mouth and had suffered from breathlessness; she had been advised never to take quinine again. She was kept under observation in one of the medical wards and was able to return home next morning.

Ten days later she returned and declared she felt none the worse. A firm thrombus was present at the site of injection. The opportunity was taken to perform a cutaneous test with a 1 per cent. solution of quinine hydrochloride. One drop of the solution was placed on the forearm and the skin scarified under it. Sterile water was used as a control. Ten minutes later a definite wheal, surrounded by an area of erythema, was seen. The control showed only very slight redness due to the scarification. A similar test was performed on my own arm and no reaction occurred.

When there is any reason to suspect idiosyncrasy to quinine the simple test described should be employed. I have treated over thirty cases of varicose veins with quinine and urethane solution intravenously, and, apart from the case described, with no untoward result.

Dr. Cranston Low, physician, Skin Department, Edinburgh Royal Infirmary, has kindly granted me permission to publish this case.

A. G. CRUIKSHANK, L.R.C.P. and S.Ed.,
Clinical Tutor, Skin Department, Edinburgh Royal Infirmary.

PARESIS OF THE MOTOR OCULI NERVE.

In the latter part of their course the third, fourth, fifth, and sixth cerebral nerves are all intimately connected as they traverse the sphenoidal fissure and the cavernous sinus. At their deep cerebral origin they are also closely related, more especially the nuclei of origin of the third and fourth nerves. The former lies close above the latter in the floor of the aqueduct of Sylvius connecting the third and fourth ventricles of the brain. It is reasonable, therefore, to expect that any peripheral or central lesion of the third nerve will also be accompanied by symptoms arising from complication of any or all of the fourth, fifth, and sixth cerebral nerves. In practice this is the usual experience.

The following case in which symptoms of paresis of the motor oculi nerve alone, unaccompanied by symptoms of other nerve complication, is perhaps deserving of record owing to its comparative rarity.

Eighteen months ago I was consulted by a man, aged 42, who complained of diplopia, the onset of which first became apparent about six weeks previous to his seeking advice. There was a history of syphilis contracted about six years before this date. The knee-jerks were absent.

On examination of the left eye it was apparent that there was slight but definite ptosis of the upper eyelid, together with slight external strabismus. Upward movement of the eyeball was defective, as also was inward movement of the organ. Movement of the eyeball downwards and outwards was unimpaired. On comparing the pupils of both eyes there was obvious mydriasis on the left side. The conjunctiva was perfectly clear, with no sign of venous congestion. Ophthalmoscopy revealed no optic neuritis, retinal changes, or hyperaemia. The right eye was normal. The Wassermann reaction was positive. The fourth nerve was obviously unaffected, since the superior oblique muscle, which causes the eyeball to turn downwards and outwards, appeared to be functioning well. Implication of the fifth nerve was eliminated by the fact that there was no neuralgia either of the supraorbital or any other type. There was no internal strabismus which would be caused by paresis of the sixth nerve affecting the function of the external rectus muscle. The lesion could not have been peripheral, not only because the third nerve alone was implicated, but because there was no venous congestion of the eye or orbit pointing to pressure on the cavernous sinus.

Here, then, was a condition of central origin, affecting only the motor oculi nerve. In view of his history I thought the condition was most probably due to a gumma, situated close to the nucleus of origin of the third nerve in such a position, and of such a small size as not to encroach upon the closely placed nucleus of origin of the pathetic nerve, and to give rise to no retinal changes indicative of intracranial tension.

I gave him a course of injections of grey oil, at weekly intervals for eight weeks, and increasing doses of potassium iodide, orally, three times a day after meals for four months. At the end of that period the troublesome diplopia had completely disappeared, together with the ptosis, and the external strabismus was hardly noticeable with the eye at rest. The pupil reacted quite briskly, and had become the same size as its fellow. The Wassermann reaction, however, still remained positive.

Unfortunately, the later history of the case could not be followed as the patient left the district, and has failed to communicate with me regarding his condition.

D. GORDON ROBINSON, L.M.S.S.A.,
Late Honorary Surgeon, Hull and East Riding Institute for the Blind.

Reports of Societies.

ENDOCRINE TUMOURS.

AT the Section of Medicine (Royal Society of Medicine) on January 15th, with Dr. ARTHUR F. HURST presiding, a paper on the subject of endocrine tumours was presented by Dr. F. PARKES WEBER. A second paper, by Dr. O. Leyton, which had been announced, was not taken, owing to the illness of the author.

Dr. Parkes Weber, who only made certain comments on his lengthy and comprehensive paper, began by remarking that he had taken a great deal of interest in the subject of endocrine tumours since, in the early years of the present century, he had participated in a discussion on a case of suprarenal cortical tumour brought forward by Bulloch and Sequeira. He recalled also bringing before the old Pathological Society a case of primary carcinoma of the liver in which, apparently, bile was secreted by the cancer cells. He found, however, that that case was by no means the first of its nature to be published, and, indeed, it was cases of this kind which first afforded evidence that tumour cells continued to function more or less like the cells from which they originated—that is to say, endocrine functions belonging to the cells from which the tumour originated were continued by the endocrine tumour.

Endocrine tumours must, of course, be exceptionally rare. To get a "full-blown" endocrine tumour it was necessary that the patient be of the right age; if the subject was too old there was no capacity left, and the manifestation of the tumour was blurred. The tumour cells, while probably not equal in physiological power to the normal cells from which they were derived, were in enormous numbers—say one hundred tumour cells to one original cell—and by that very fact were enabled to multiply the physiological action. The same symptoms need not always be evidenced as a result of the same kind of tumour. A person with acromegaly, for example, might react differently, according to age and sex and the different constitution of the parts involved. One of the effects of acromegaly was an extreme thickening of the scalp. The scalp got so big and thick that in order to fit the skull it had to be corrugated. Recently he had had occasion to refer to a case in which this occurred only on one side of the body. His explanation was that in some cases only one side of the body was so constituted that it reacted readily to an endocrine stimulus.

Pineal tumours, Dr. Parkes Weber went on, presented some difficulty. From the pineal tumour there could be no doubt that we got what he called "macrogenitosomia"; the usual term was "macrosomia," but he preferred to reserve this for excessive bodily growth, and to use the other term to express excessive sexual development. Some people thought this to be due to destruction of the normal function of the pineal body, but the fact remained that tumours of the pineal body did certainly produce macrogenitosomia in some cases. Turning to the testes, the speaker said that in modern textbooks it would be found that pathologists stated that certain tumours of the testes looked as if they were derived from the interstitial cells. Unfortunately, all these cases occurred in adults, after general growth had ceased, and therefore one could not expect to get macrogenitosomia; but Mr. Rowlands had lately had a remarkable case of macrogenitosomia in a boy of 9, photographs of which he permitted to be shown. A tumour was removed from this boy, which was pronounced to be a tumour of the interstitial cells of the testes. The boy, previous to removal of the tumour, had adult sexual characters, and returned to childhood afterwards. A point to be noted was that in a number of conditions in men, an upset of the endocrine balance was associated with unilateral or bilateral enlargement of the breast, and in some cases with a certain secretion of milk. This was known to follow pineal tumour, it was known in acromegaly, in traumatisms of the testes, and in some other conditions. One must not argue that because a male developed mammary enlargement therefore he had not got one of these virilism-producing tumours.

Turning to the pancreas, he said that no tumour which produced endocrine symptoms was known in the pancreas until quite recently, although it was known that in some cases of primary cancer of the pancreas the tumour cells resembled those of the islands of Langerhans. Tumours of the thyroid gland scarcely needed to be mentioned; one of the most famous cases in this connexion was published as far back as 1894. There was more difficulty with regard to the parathyroid; some of the tumours might have represented an adenomatous form or an attempt at compensatory hyperplasia. Was there any function of the spleen or parts of the spleen? There was evidence of symptoms produced by the action of the spleen which might be called "hypersplenism" by analogy with hyperthyroidism. The symptoms included haemorrhage and anaemia, but if one wanted to find out exactly what they were one must look to the diseases in which removal of the spleen produced an apparent cure. One rare disease manifested nodules

originating in the Malpighian corpuscles of the spleen; this was accompanied by anaemia, thrombocytopenia, and tendency to haemorrhage, and might prove to be one form of tumour issuing from the endocrine organ, but the subject was too speculative to dwell upon.

When it was borne in mind that an affection of one endocrine gland must almost necessarily cause reaction in others, it was not surprising that the clinical picture might sometimes be obscured by pluriglandular symptoms. Moreover, precocious growth, combined in most cases with precocious sexual development, might be caused by endocrine tumours of the suprarenal cortex, of the anterior lobe of the pituitary gland, possibly of the pineal gland, of the interstitial cells of the testes, and likewise of the ovary. Functionally active primary tumours and tumour-like hyperplasia of the various endocrine glands might be subdivided into those which arose as a pathological manifestation of a compensatory reaction on the part of the body, counteracting a specific hormonic deficiency, and those—specially considered in this communication—which arose independently of any obvious need or stimulation, and were rather the cause of hormonic over-activity, which in some cases might be injurious rather than beneficial to the rest of the body. In both these classes secondary symptoms, including further endocrine symptoms, might be produced by the local pressure and irritation, and, moreover, malignancy might supervene. Non-endocrine tumours might also by local irritation, pressure, or destruction give rise to endocrine symptoms.

Dr. A. F. HURST mentioned the case of a man who, as a result of parathyroid tumour which was operated upon, developed, among other symptoms, the exact opposite of macrogenitosomia. His hair ceased to grow, and he lost all sexual sensation and power. He was given parathyroid gland and recovered completely, beginning again to shave every day, though previously it had been sufficient for him to shave once a month. He had to take full doses of parathyroid over two or three years, and lessened doses over an extended time. Sexual vigour completely returned.

Dr. W. LANGDON-BROWN spoke of some cases of virilism which had come within his experience, and commented on the remarkable fact that these disturbances might be produced by a lesion in the cortex of the suprarenal gland or in the anterior lobe of the pituitary, or both. With regard to the pineal gland, he thought the undoubted effects were rather through the vegetative nervous system than by any endocrine action.

Dr. ARTHUR ELLIS spoke of another case bearing on Dr. Parkes Weber's reference to tumour cells in primary cancer of the pancreas resembling those of the islands of Langerhans. He also asked about the clinical syndrome associated with tumours of the anterior lobe of the pituitary.

LIGHT THERAPY IN MENTAL HOSPITALS.

AT a meeting of the Section of Psychiatry of the Royal Society of Medicine on January 8th, with Sir MAURICE CRAIG in the chair, a discussion took place on light therapy in mental hospitals.

Dr. H. DOVE CORMAC (Macclesfield), in opening, said that only sixteen mental hospitals had apparatus for administering artificial sunlight; eight others hoped soon to have an installation, though it was now five years since actinotherapy was first used at Horton Mental Hospital, under the direction of Colonel Lord. During 1925 an investigation was undertaken at his (the speaker's) hospital as to the results of irradiation of about 50 cases, the patients having been treated for periods of from two weeks to two months. An 80-ampere carbon arc was used, the electrodes being high-intensity carbons. Six to eight patients were treated at a time, the whole body being irradiated. All suitable admissions during the year were so exposed. These did not include any cases of epilepsy, mania, or general paralysis of the insane. Five minutes' exposure to the front of the body and the same to the back was given at the commencement, until a maximum of thirty minutes was reached, the arc being 3 ft. from the patient. The metabolic rate and the pressure and differential count of the blood were recorded before, during, and after treatment, and a weekly note was made of body weight and of mental variations, appetite, sleep, and skin condition. There was a marked and general increase of body weight after the treatment, to an average of 3½ lb. per patient. Generally also the appetite improved, and in most of the patients there was more muscular activity, with an accession of cheerfulness after the treatment. The metabolic rates and the blood counts showed no constant variation. On the average there was a slight decrease of the systolic pressure. It was soon recognized that such conditions as melancholia with agitation and hyperthyroidism were aggravated by the irradiation. Cases of manic-depressive insanity responded most readily, for the rays led to a material curtailment of the period of depression. Mild cases of melancholia were benefited by the treatment. Delusional cases, with much mental irritability due to the delusions, became more amiable under the rays. In dementia praecox the treatment produced no amelioration of the mental condition, but some of these cases showed greater motor activity and talkativeness. Some declared that the irradiation augmented the bactericidal power of the blood and improved the body immunity. Murray Levick had declared that the neurasthenic symptoms accompanying rickets had been made to disappear under ultra-violet ray treatment. Dr. Cormac reminded the meeting that many so-called neurasthenics were really cases of melancholia with hypochondriacal tendencies. It was now generally held that the ultra-violet rays affected not only the vasomotor system, but also other parts of the vegetative nervous system, such as those controlling the pigmentation of the skin, the fibres supplying the hair follicles, and those affecting the muscle tone. It was justifiable to infer that the whole of the sensory division of the nervous system was influenced by general irradiation. Ultra-violet rays could be said to paralyse certain inhibitions and to produce a general sense of well-being. In some people hypersensitivity to light rays might be an idiosyncrasy, and this possibility should always be borne in mind in deciding individual dosages.

Sir HENRY GAUVAIN explained that his work did not consist in treating mental cases, but perhaps his contribution might have some bearing on that special aspect. Irradiation with ultra-violet rays had a tonic and stimulating action, but its prolonged employment caused progressive loss of response, while excessive exposure to the rays produced depression, listlessness, and exhaustion. Interrupted and periodical exposure to the rays seemed preferable to long courses. In the study of the chemical changes in the blood following exposure to ultra-violet light it had been demonstrated that such exposure was followed by an increase in the inorganic blood phosphate. It had been suggested that the rays might be an important factor in effecting tissue change, and so might improve the nutrition of the grey matter of the brain, thus increasing the mental activity. These facts seemed to have an important bearing on the education of the normal as well as of the subnormal child or ailing child. When planning treatment it should be borne in mind that there were seasonal and diurnal variations in response to the rays. General light baths should only be regarded as auxiliary means of treatment, and should not be held to supplant other methods of proved utility.

Dr. A. C. HANCOCK spoke of his experience of the rays at Horton Mental Hospital in earlier days. He said the carbon arc lamp was cheap to install, and many cases could be treated by it at the same time. In many hospital patients no definite focus of infection could be found, but their general appearance was unsatisfactory. In all with a definite septic focus the results of the ultra-violet treatment were very satisfactory and lasting. A good deal of notice should be taken of what the patient himself said about the treatment; in many cases the remark was volunteered that they felt much better in every way; spontaneous expressions of gratitude were forthcoming from 70 per cent. of the patients. Cases of dementia praecox did not usually benefit by the treatment, but most cases of the simple type were improved. He had come across cases of definite malaise among nurses and patients in association with the administrations; there was a

complaint of giddiness, sweating, etc. Generally speaking, the installation and use of this treatment had been fully justified in mental hospitals.

Dr. G. DE M. RUDOLF (Claybury Mental Hospital) objected to the use of the term "light rays" for the ultra-violet rays. It led to confusion with the light and red ray treatment of Dr. Murray Levick. Ultra-violet radiations having been proved to be of value for certain conditions in general hospitals, they were clearly also of value in mental hospitals for the same conditions. For that reason alone he thought that every mental hospital should be equipped with such installations; 185 patients in Claybury Mental Hospital had had this treatment in the last three years. It had been shown that ultra-violet rays did not of themselves change the metabolism of the body. Experience at Claybury had taught caution in forming a judgement as to the effect of ultra-violet rays on mental and physical disorders. Two types of cases were particularly difficult to judge. The first was that of general paralytics who had previously been treated with malaria and were then subjected to these rays to tone up the body after the course of quinine. It was almost impossible to get adequate control cases. His own impression was that the patients who were given ultra-violet rays improved more rapidly than those who did not have this treatment. The other type of case he referred to was the poorly nourished, pale, melancholic, toxic patient. Treated with the rays soon after admission, it was impossible to know whether their improvement was due to the rest, food and regular method of living in the hospital, or to the rays.

Dr. R. BOURDILLON made a plea for the employment of more visible light in treatment and less ultra-violet radiation. At present most irradiation treatment was done with mixed rays. Tungsten arcs and mercury arcs gave only a fractional portion of the benefit which was traceable to direct sunlight. The value of the burning of the skin was difficult to appraise. Less was at present known as to the effects of visible light than as to those of ultra-violet radiation.

Dr. W. A. POTTS (Birmingham) spoke of the importance, when dealing with mental patients, of giving the treatment in batches, otherwise the fear as to what was going to happen was liable to cancel any mental benefit which might otherwise accrue. He had convinced himself of this by comparing cases treated by arc lamps in hospital with those treated singly in private.

Dr. A. EIDINOW pointed out that the mercury vapour lamp emitted very high intensity short waves, and caused a rapid erythema. The purpose of that lamp was to treat acute and subacute conditions. If such cases were treated with light and radiant energy the results would not be good. In mental patients one was treating chronic conditions, therefore longer rays and visible light and heat rays were indicated. Personally he did not see that mental conditions needed the ultra-violet rays.

Sir ROBERT ARMSTRONG-JONES expressed his approval of the attitude of the Ministry of Health in requiring that the ultra-violet and other irradiations should be given only under competent medical supervision. In the improvement brought about by this treatment there were a multiplicity of factors. It seemed to be contraindicated for tuberculosis.

Dr. ELIZABETH C. MUDIE said she had never encountered any cases of malaise in those associated with the treatment, such as nurses. In only one case in her practice was there a setback, and that was one of conjunctivitis due to carelessness in connexion with the goggles.

The PRESIDENT said that what was most needed at the present time was a definite lead as to the kinds of cases which were likely to benefit from exposure to ultra-violet rays.

Dr. CORMAC briefly replied, remarking that he had not encountered any instances of malaise in the treatment, as mentioned by Dr. Hancock. When a patient had abnormally high blood pressure the ray treatment reduced it, but in cases of low blood pressure the exposure to the ultra-violet rays caused no alteration. When a patient was made worse by the treatment he attributed it to the state of the sensory nerves.

TREATMENT OF DIABETIC COMA.

AN informal discussion of the treatment of diabetic coma took place on January 8th, in the Section of Therapeutics and Pharmacology of the Royal Society of Medicine, with Dr. H. H. DALE in the chair.

Professor E. C. DODDS, who opened the discussion from the standpoint of a chemical pathologist, said that at the Middlesex Hospital reliance was wholly placed upon the dosage of insulin and the blood sugar determinations. When a comatose patient was admitted the blood sugar figure was estimated at once, usually before insulin was given. The patient was then given a dose of insulin, usually 100 units. The important point was that the blood sugar was always controlled. It was possible to work for a time entirely on urine sugar estimations, until the patient was losing his air hunger and the sugar in the blood was getting near normal; but risks were taken in working purely on urine. In showing a chart illustrating the progress of some cases, he pointed out that with all the specimens of blood the alkali reserve was also determined. This determination was worth while because it yielded more information than a simple blood sugar test or a simple test for alkaline bodies in the urine. He then spoke of the patients who, treated in this manner in hospital, did not recover, but died. The reasons for death might be classified as follows: (1) diabetes uncontrollable; (2) failure to respond to insulin on account of kidney damage, with retention of urea, producing a symptom-complex very similar to diabetic coma; (3) failure of circulatory system. It was out of the question to present statistics, because no fair comparison could be made between cases brought into hospital at the commencement of coma and cases which had already been in coma for twenty-four or forty-eight hours. The first category of deaths from uncontrollable diabetes occurred in his experience usually in septic conditions, and *ipso facto* were ruled out of the present discussion. As for the second category, the view that people could die of diabetic coma purely through failure of the kidney was put before the Society some time previously by Professor Snapper of Amsterdam (*British Medical Journal*, May 5th, 1928, p. 759), who found that the urea and non-protein nitrogen was always raised in diabetic coma, and particularly in those fatal cases which did not respond to insulin, so that he concluded there was failure of the kidney which was responsible for death. Experience at the Middlesex had not tended to show that this theory was of any practical importance. A high urea and non-protein nitrogen was extremely common in diabetes, particularly in diabetic coma, and simply from the blood analysis and the evidence of nitrogen retention one could not say that the patients died from uraemia. With regard to the third category, that of circulatory failure, he had watched practically all diabetic comas continuously in the Middlesex Hospital, and had always noticed that patients who died had a low blood pressure and appeared to die from circulatory failure. In one case which he described the subcutaneous injection of ephetonin and pituitrin at half-hour intervals had no effect on the low blood pressure, and circulatory failure was the cause of death in this case also.

Dr. GEORGE GRAHAM gave a particularized account of a recent case of a boy, aged 16, who, after doing well on insulin treatment, suddenly developed coma and was admitted to hospital. He showed charts illustrating the administrations of insulin and glucose, with the blood sugar and other determinations, over a period of six critical days, after which the lad recovered. It was clear that this lad went into coma because he was unable to excrete his acetone bodies; what was wrong with the kidneys the speaker could not say. As for treatment, plenty of insulin and plenty of sugar were given. It was quite clear that the blood in this case flowed with difficulty and was sticky. The haemoglobin, which twenty-four hours after he became ill was 110 per cent., went down to 80 per cent. two days later. Fluid was given intravenously. He believed that some of the patients who died had a condition akin to surgical shock. They could not keep the fluid in their blood. Plenty of fluid should be given, by the mouth if

possible, but, if not, it should be given intravenously, and under pressure.

Dr. R. D. LAWRENCE discussed first the question as to the best level at which to keep the blood sugar and whether glucose ought to be given early. Most of the very severe cases had blood sugars of 0.6 to 0.8 per cent., occasionally even higher, and they were all extremely dehydrated. It seemed to him that to give glucose at the beginning of treatment was unnecessary and certainly unphysiological. It would seem advisable at first not to administer glucose along with insulin in cases which could be controlled by blood sugar determinations. In other countries—in America and to some extent in Germany—glucose was not so given with insulin at the beginning. Personally, for the last three or four years, in hospital treatment, he had only used glucose when the blood sugar became approximately normal. In some of the severe cases he had treated, had he given the doses of glucose sometimes recommended he was sure that he would never have succeeded in lowering the blood sugar. He next discussed the stimulation of the circulation. The patients were dehydrated, and he thought the most important thing in collapse was to give them large quantities—1 or 1½ pints—of saline intravenously, and with that saline it had been his practice to include a couple of minims of adrenaline. He had also tried strophanthin for the heart, but he had found the stimulating effect of adrenaline in some cases miraculous. The effect was short-lived, however, lasting only twenty to forty minutes. The whole trouble was circulatory depression, and the cases he had seen had never led him to suppose that failure of the kidney to get rid of the acetone was correlated with the severe condition in which the patient was found. No speaker so far had mentioned the use of alkalis, and the possible wisdom of giving some sodium bicarbonate early in treatment. Personally he did not think it mattered very much, but he did usually introduce a few grams of sodium bicarbonate into any intravenous injection. The old overdosing with alkalis was quite out of the question, and perhaps made the ketosis worse, but a few grams at the beginning of treatment, when the alkali reserve might be about 20, could do nothing but good. He showed charts illustrating the prolonged action that insulin might have once it produced its effect. As soon as the fall in blood sugar began one should ease off the insulin, or else give a good deal of glucose along with it.

Professor HUGH MACLEAN said that they were all agreed on general principles in the treatment of coma. There were no schools now which differed materially from one another. He gave large doses of insulin; as a routine, in an ordinary case, about 50 units before the blood sugar was taken, and was afterwards guided by that determination. He thought it unphysiological to give large amounts of sugar when the blood sugar could be estimated. There was no doubt of the efficacy of cardiac stimulation, and various remedies might be used—strophanthin, and so on; camphor had a marked effect in some cases. The speaker went on to say that it might be useful to bring to the forefront some principles not quite clearly understood. In the treatment of diabetic coma everything seemed to be centred on the lowering of the blood sugar. A high blood sugar in itself did no harm, though, of course, it had to be lowered, if the usual physiological teaching were accepted, in order that the ketone bodies might be dealt with. But one saw many cases of glycosuria where the blood sugar was as high as 0.5 per cent., and as long as there was no acidosis there was no coma. He had never seen a case of typical coma without acidosis. He had read of such cases in literature, but he thought they were due to something else, perhaps liver degeneration. The treatment was to be directed towards ensuring a large supply of insulin and maintaining a moderate amount of blood sugar. That was why the blood sugar must not be allowed to sink below a certain point. The fact that the blood sugar came down to, say, 0.05 or 0.1 did not necessarily indicate that the coma had passed. As a rule the blood sugar did give a fair indication of the position, but one saw patients now and again whose blood sugar, as a result of insulin, had got quite low, and who yet were suffering from the classical symptoms of coma. On the whole, the problem of treating a case when there were facilities for blood sugar determinations, as in hospital, was not difficult, but away from hospital it was very difficult indeed, and in those conditions the proper thing was to give plenty of glucose. In diabetic coma, everybody agreed, the effect on the circulatory system was a severe one, and a grave risk was run with regard to the heart condition. As to the question whether sodium bicarbonate should be administered, it was certainly bad to give a large amount; on the other hand, a small dose was indicated because of the low alkali reserve.

Dr. OTTO LEYTON had heard no argument which made it evident that the giving of sugar was detrimental. In hospital the cases under his care usually received a large dose of insulin *plus* sugar; he had seen 0.9 per cent. of dextrose in the blood of a man who appeared to be perfectly well, and quite a large amount of sugar could be present in the blood of a patient without any detrimental effect. As a rule, sugar given to a diabetic acted as a diuretic, though unfortunately it did not always act as a diuretic in diabetic coma, but it might do so. He did not see why it should dehydrate the patient, because it would be possible to give him quite large quantities of water with the sugar. He gave it as a rule in isotonic solution 18 per cent., but if there was any evidence of dehydration there was no reason why it should not be introduced in a more dilute condition. A large number of patients were met with who had a low renal threshold and developed diabetes. He was told that in America this was not the experience, but he could not help feeling that in this country they had all come across such cases. Even if an individual at a particular threshold did not develop diabetes that threshold was not constant, and for some unknown reason there might be a very great fall; in diabetic coma he had seen cases excreting sugar in the urine when the sugar in the blood was below 0.04 per cent. It was dangerous to assume that, because there was sugar in the urine, therefore more insulin might be given.

Dr. P. J. CAMMIDGE said that it had been assumed by all who had spoken that diabetic coma was always one and the same thing. This idea was bound to lead to mistakes. The way to treat diabetic coma depended to a considerable extent upon the duration of the causative condition. At one time it was believed that diabetic coma was due to acidosis. Latterly the effects of acidosis were believed to be due largely to the changes in osmotic pressure of the cells and between the cells and the blood plasma, and that depletion of the body cell electrolytes by the acid bodies gave rise to the condition which caused the coma. The depletion of the fixed bases from the nerve cells caused the loss of consciousness, and the depletion of the fixed bases from the heart and other muscles gave rise to the weakness and the alterations of the blood pressure. If one could get hold of a case in which these symptoms were in a comparatively early stage, and could remove the bodies which were combined with the fixed bases and set them free quickly enough, the patient would recover quite rapidly, and the speaker had repeatedly seen cases in which, by giving fairly large doses of insulin intravenously, the patient had recovered consciousness and had become apparently quite well in a very short time. On the other hand, patients who had been unconscious for a long time might be given any amount of insulin with little or no effect. The patient who recovered easily with insulin alone was usually young; the patient who required big doses and then only recovered temporarily was elderly. There was an age element as well as a time element. In the elderly patient, as a rule, sugar had to be given as well as insulin, and no matter how much sugar or insulin was given it was not possible, beyond a certain limit, to speed up the rate at which the oxidation of the ketone bodies went on. The only procedure was to give alkali intravenously, not large doses, with insulin. In the young diabetic, where the coma was only of short duration, insulin by itself would usually be quite sufficient; in a case of longer duration or an older patient insulin and glucose were usually required, and in an old patient insulin, glucose, and small amounts of sodium bicarbonate were given intravenously.

Dr. W. W. PAYNE spoke of the fallacy of depending on the urine test, and mentioned three cases in which the urine showed no sugar or acetone bodies. One patient was still in coma, and the blood sugar was 0.5 per cent.

Dr. C. G. WOLF had been impressed by the work of Blum and his fellows in Strasbourg on the depletion of the chlorides in the body fluids in diabetic coma. Partly this depletion was due to the fact that owing to the vomiting and diuresis a large amount of sodium chloride was excreted which it was not possible to replace. Blum found that the effects of insulin, both on the blood sugar and on the coma, were much accentuated by the addition of suitable amounts of sodium chloride. It seemed from some experience of his own also, in Cambridge, that the addition of sodium chloride with the insulin gave a very much better effect.

Dr. PHILIP HAMILL said that the recital of Dr. Lawrence's experiences had carried him back to the days when one had to treat cholera, where there was extremely viscid blood. If morphine were given under the skin to control cramps and pain a very slight result was achieved, but if quite a small dose of morphine were given into a vein there was relief of pain at once. It was well known that one ought not to give repeated doses of morphine under the skin in such conditions, because, after the morphine had remained quietly beneath the skin, it was liable to be moved into the circulation with the saline.

Dr. F. B. BYROM pointed to certain evidence suggesting that in some of these cases renal damage played a large part. His own impression was that this arose in patients who arrived at hospital too late.

Dr. E. C. LINDER quoted a case of alkaline therapy in a girl who was admitted with diabetic coma. He gave her 10 grams of bicarbonate intravenously, and it brought up the CO_2 in the blood markedly, though not to the theoretical level, and the general condition of the patient improved very greatly.

Dr. H. H. DALE said that it seemed to him that if a patient with a circulation extraordinarily enfeebled were given large injections into his subcutaneous tissues it might be worth while to investigate the treatment of these cases by smaller doses of insulin given at more frequent intervals, possibly intravenously, rather than by starting off with large doses, which might be storing up trouble.

Dr. CAMMIDGE mentioned that one worker had recommended giving sodium chloride in large doses to people who had acidosis—not coma—to prevent them from passing into coma, the idea being that sodium chloride kept the ketone bodies locked up in the tissues, and prevented them circulating in the blood and doing damage.

Dr. GRAHAM said that Professor Dodds, who had had to leave the meeting, wished to make one point in reply on the discussion—namely, that as a general rule he thought it wrong to omit giving sugar, because of the danger of passing too quickly from a hyperglycaemia to a hypoglycaemia. Dr. LAWRENCE, also in reply, said that he had tried intravenous insulin in one case where subcutaneous administration had failed. Quite a small dose was given. The blood sugar went up, however, and the patient died a few hours later.

MEDICAL EXPERIENCES IN SHANGHAI.

A VERY interesting description of his experiences at Shanghai with the British Defence Force in 1927 was given, on January 3rd, to the Section of Tropical Diseases of the Royal Society of Medicine by Colonel W. P. MACARTHUR, D.S.O., professor of tropical medicine at the Royal Army Medical College.

After a description of Shanghai itself and the military situation there, and of Chinese tactics, military and psychological, Colonel MacArthur gave an account of the billeting of the troops and the hospital arrangements. There were, he said, two central hospitals, one established in a block of flats (after extensive alterations), containing 300 beds, and the other, containing 200 beds, in the Chinese polytechnic school. The 12th Field Ambulance, established in a school and in huts, ran a hospital for venereal and skin diseases. The Indians were accommodated in a converted factory equipped with 300 beds. There were also two convalescent centres; eventually it was possible to use Wei-hai-wei as a convalescent depot, and this proved of unspeakable value to troops sorely tried by the Shanghai summer. No time was lost by the medical authorities in getting into touch with the Public Health Department of Shanghai and with the several practitioners, so as to profit from local knowledge and experience. It was felt that the men of the Defence Force, scattered as they were all over Shanghai, occupying positions not chosen for health reasons, but on account of their military importance, and always in close association with Chinese over whom they had no control, could hardly hope to escape some extensive epidemic, probably bacillary dysentery, possibly cholera, but the authorities were unanimous in declaring that there was no danger from malaria, as indigenous malaria was supposed to be non-existent in Shanghai. There was only one species of anopheline—*A. hyrcanus*, which was supposed to be non-effective as a carrier. When a Punjabi soldier conveniently relapsed with malaria, however, feeding experiments were carried out which showed *A. hyrcanus* to be quite effective, given the necessary conditions. This species abounded on the outskirts of the settlement, where it bred in the creeks. An interesting observation was made regarding its habits. If men were accommodated partly in tents and partly in billets alongside, any *A. hyrcanus* which appeared was found in the tents and not in the billets. In one camp, at Hungjao, a pleasant country district about five miles beyond the western boundary of the settlement, the numbers of this anopheles gave rise to uneasiness, and eventually the camp was evacuated, an unpopular move because it meant that the troops returned to the streets of Shanghai. Among the men withdrawn from the camp a number of cases of malaria did occur, and other cases were scattered through the units in the west of the settlement. Altogether there were some 400 cases of malaria, for which popular opinion blamed the Indian battalions as the importers, though it was absurd to suppose that these units could have infected mosquitos eight or ten miles distant, with a thickly populated area in between. The probability was that malaria in a mild form existed amongst the Chinese, unnoticed and unrecorded because of the freedom of Europeans from attack, and this was borne out by some later investigation in Chinese villages in the Hungjao region, where cases of malaria were discovered, and it was also found that in a Chinese cotton mill quinine had been a routine issue to the workers for some years past. The cases of malaria among the troops were a mild type of benign tertian; the great majority of the men infected showed a continuous fever to begin with, without paroxysms, and when these occurred they were usually indications of recrudescence or relapse. Thus the type of malaria experienced in Shanghai exactly corresponded with that described by Sydenham in England in the seventeenth century.

Colonel MacArthur then gave some instructive details about the incidence of venereal disease in Shanghai. A good deal of "climatic bubo" was experienced, apparently merely an evidence of venereal infection. Some of these cases were treated by protein shock therapy, with some benefit but no dramatic results, and the general opinion was that the most hopeful treatment in early cases was excision of the glands. The expected epidemic of cholera did not fail to materialize, but not among the troops. There were some thousands of cases in Greater Shanghai and some hundreds within the settlement. The cholera season coincided with the melon season; it was the habit of producers to prick the melons and inject water from the nearest creek. The condition of the water in the creeks was illustrated by the story of a European girl who attempted suicide by drowning in a creek, but was rescued and restored to consciousness, only to develop cholera in a most intense form as a result of her immersion, and to die after a few hours' illness. Energetic measures were taken against cholera; a motor ambulance was on duty night and day to bring suspected cases to hospital, and permanganate pills were issued for early treatment. But in spite of all opportunities for infection the troops entirely escaped the cholera. In one instance several men were admitted to hospital with suspicious symptoms, but food poisoning was established by bacteriological investigation. There was a clear history in these cases also of vomiting commencing well before the diarrhoea, whereas in thirty cases of genuine cholera admitted to the civil hospital at this time the

diarrhoea commenced well before the vomiting. One complication of cholera which he had seen described was gangrene of the feet, and on going to the civil hospital one day he was told by the experienced matron that a patient who had died several hours before showed marked gangrene of both feet. He went to the mortuary, and on lifting the shroud was astonished to see that the feet were of exactly the same waxen colour as the rest of the body; apparently the condition which had been taken as gangrene was merely extreme localized cyanosis.

Bacillary dysentery was common in Shanghai, reaching its maximum in September, but there were only 28 cases of dysentery in the force. Diarrhoea was common also, and few Europeans went through the summer without one or more attacks. Pneumonia was responsible for the largest number of deaths from disease—namely, 13 out of a total of 23. As elsewhere in the tropics, pneumonia in Shanghai was mainly a disease of the hot weather. There was always a possibility of infection owing to the overcrowding in the streets and in public vehicles, combined with the constant spitting habits of the Chinese. As a race they eschewed handkerchiefs, and nothing was more distressing than to find oneself in the middle of a crowd of persons noisily ejecting their bronchial and nasal secretions on to the pavement. Among minor affections various forms of tinea were common, as well as prickly heat and inflammation of the external auditory meatus.

Colonel MacArthur, in conclusion, said that what struck him most on arriving at Shanghai was the position held by the medical authorities. It was not a question of visiting an unwilling staff officer to persuade him to do this or that, but it was a question of the staff officer asking the medical authorities if there was anything further that they wished done, and "what the R.A.M.C. said, went." The gratifying absence of epidemic disease, in spite of the dire prophecies of those most familiar with Shanghai, was due to the ceaseless vigilance of the people responsible for the health of the troops, the excellence of the preventive measures instituted, and the thoroughness with which they were carried into effect.

DIAGNOSIS OF CHRONIC APPENDICITIS.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society on January 3rd, with the president, MR. GEOFFREY BATE, in the chair, MR. H. N. FLETCHER read a paper entitled "Chronic appendicitis and other conditions which simulate it."

Mr. Fletcher, in the course of describing the varieties of pathological appendix seen at operation, mentioned a rather uncommon form, usually seen in children, in which there was very marked hypertrophy of the adenoid tissue of the mucosa and large fleshy glands of the ileo-colic mesentery. Colicky pain of short duration, coming on especially after food, was the principal symptom; it appeared to be due to spasm set up by the hypertrophied mucosa, which did not necessarily show any histological evidence of inflammation. The enlarged glands might cause slight tenderness; it seemed probable that their enlargement was due to absorption of toxins from the appendix. There was no apparent enlargement of glands elsewhere, nor of the tonsils. As regards the diagnosis of chronic appendicitis, the speaker approved the emphasis laid by Sherren and others on the importance of a history of a preceding acute attack, starting centrally; any case in which the pain had started in, or had been confined to, the right iliac fossa should be viewed with suspicion. None the less there were exceptions. Mr. Fletcher had operated on not a few patients with acute appendicitis who insisted that the pain had started in the right iliac fossa, and this was especially the case when the appendix lay in an extra- or retro-caecal position. Again, there were cases of undoubted chronic appendicitis where there had been no acute attack; these were notably of the type in which a faecal calculus caused a mild inflammation of the mucosa surrounding it. Cases not conforming to Sherren's rule should be scrutinized with the greatest care, and every other possible cause be considered in turn, with the help, if necessary, of the x rays, and always with a routine microscopic examination of the urine. The investigation must include in its survey the urinary, generative, digestive, and biliary systems. The speaker reviewed 100 cases in which he had operated for supposed chronic appendicitis, and in all of which at least one year or more had elapsed before inquiry was made; 68, or just over two-thirds, had been cured of the pain for which they sought relief, and 32 had had a return of pain, or had minor disturbances which precluded them from being regarded as definite cures. Errors of diagnosis, the majority being cases of tuberculous glands, accounted for twelve of these failures. Sixteen patients, in 5 of whom there was undoubtedly appendicitis also, had ptosis of the proximal colon or congenital membrane formation in it; this probably caused their renewed pain. It was significant that of these 16 patients 15 were females, of whom 11 were young adults. Twenty-nine patients with true appendicitis had dyspepsia also; of these, 22 were cured by appendicectomy; 12 had the flatulent and 17 the painful type. Of these last there was in 8 cases a strong mimicry of gastric or duodenal ulcer, in that the pain was of a severe gnawing, cramping, or gripping type, constant in its time incidence after food, the attacks lasting one, two, or more weeks, with periods of complete relief between. Six of these patients were entirely cured by removal of the appendix. The concurrence of attacks of dyspepsia and the lighting up of appendicular symptoms were noted in several cases. Mr. Fletcher discussed the differential diagnosis between chronic appendicitis, and pelvic, urinary, glandular, cholecystitic, and proximal colon diseases, paying special attention to the last, which was the most common source of error in the female sex. He had found skin hyperaesthesia in appendicitis, involving the neighbouring halves of the tenth and eleventh right dorsal segments far more frequently than any other area, and though the caecum might possibly also be represented in those segments, he regarded such hypersensitiveness as a valuable confirmatory sign of appendicitis.

IDIOPATHIC CARDIAC HYPERTROPHY.

AT a meeting of the Liverpool Medical Institution on December 6th, 1928, DR. NORMAN B. CAPON read a paper on hypertrophy of the heart in infancy, with special reference to the interesting type usually named "idiopathic hypertrophy of the heart in young children."

Dr. Capon described an example of this form of hypertrophy occurring in a male twin baby, aged 4 months; the radiographic and microscopical features were illustrated by lantern slides. The necropsy showed that, in addition to very great hypertrophy and dilatation of the left ventricle, there was abnormal origin of both coronary arteries. The left artery took its origin from the left anterior sinus of Valsalva of the pulmonary artery; the right artery arose from the aorta, but its orifice was situated in the right posterior sinus of Valsalva instead of in the anterior sinus. The thymus was of the normal size for the age. The myocardium, especially the left ventricle, showed fragmentation, disappearance of nuclei, and atrophy; there was no evidence of inflammatory or lymphocytic invasion, nor were any of the special cells described by Ceelen and Riesenfeld seen. Dr. Capon then discussed the circulatory changes which probably occurred during life in the myocardium of the left ventricle as a result of the anomalous origin of the left coronary artery. The investigations of Anrep, Cruickshank, King, Wearn and Hilton, and Eicholtz were referred to, and the probable importance of the Thebesian veins was emphasized. Dr. Capon said that although the literature contained several examples similar to that described, in all of which it might be thought that the supply of venous blood to the myocardium of the left ventricle was the cause of its hypertrophy and dilatation, the following facts must be remembered. Howland and others had described cases of idiopathic cardiac hypertrophy in which the coronary arteries arose normally. Gross had referred to five cases of single coronary artery, apparently causing little or no ill effect. The McGill case (described by Abbott) had demonstrated that a woman was able to live to the age of 60 apparently without cardiac symptoms, although her left coronary artery arose from the pulmonary artery. Dr. Capon concluded by referring to the various theories of the causes of idiopathic cardiac hypertrophy.

SURGERY OF THE OESOPHAGUS AND LUNGS.

LECTURE BY PROFESSOR ZAAIJER.

A MEETING of the Hunterian Society was held at the Mansion House, London, on January 14th, under the chairmanship of Dr. A. WESTERMAN, when Professor J. H. ZAAIJER of the University of Leyden delivered the annual Hunterian Lecture, taking for his subject the surgery of the oesophagus and the lungs.

Professor Zaaijer, who spoke in excellent English, after paying a tribute to John Hunter, gave what amounted to a demonstration, with the aid of lantern slides, of the methods pursued since 1909 in his surgical clinic at Leyden. He began by describing a simplified positive pressure apparatus constructed by his assistants for use in intrathoracic surgery. In passing, he pointed out as a curious historical fact that what twenty years ago was thought to be a new invention was described as long ago as 1543 by the famous anatomist Vesalius, in writing of the danger of suffocating an experimental animal through collapse of both lungs: "But to keep the animal alive one must try to open the windpipe and place therein a tube made from a quill pen or a hollow reed; into this the air must be blown so that the lung swells and the animal gets sufficient air. By a slight blowing the lungs swell so much as to fill the thoracic cavity, and the heart regains its force."

In bilateral pneumothorax, said the lecturer, there was no doubt that such an apparatus was necessary for maintaining life, but he thought that Lilienthal was quite right when he said, in his well-known book on thoracic surgery, that it was unwise not to have regard to positive pressure in unilateral pneumothorax also, because one was never sure that this would not cause very severe symptoms, and at least the danger was lessened by using such a means. Professor Zaaijer described cases in which he had operated successfully under pressure, including one patient who had an immense tumour extending from the side of the neck and front of the chest, where the danger of air embolism when cutting the vessels under the tumour was very great. This patient was operated upon under pressure, and, as subsequent photographs showed, made a very good recovery.

The special anaesthesia outfit employed in the surgical clinic at Leyden was also described and illustrated, including a mask so constructed as to allow the head to lie easily in the side position. The lecturer began carrying out operations for carcinoma of the oesophagus in 1912, having convinced himself as a result of animal experiment that there ought to be a possibility of the resection of such malignant growths. His experience had proved to him the technical operability of carcinoma situated low in the oesophagus, though it was true that he had not many such cases to bring forward, and those in which the operation had shown a successful result, so that the patient lived for some while after, had ended fatally from some recurrence or complication or adventitious circumstances. But he still believed that it was worth while trying to cure a patient with carcinoma of the thoracic oesophagus by operation. Diagnostic and operative technique was slowly but certainly improving. The latest improvement was the mobilization of the stomach, introduced by Kirschner, whereby the stomach could be pulled high up into the thoracic cavity. There was also the more extensive use of the transpleural exploration of the oesophagus, as described by Romanis and others. At Leyden, at all events, they had not lost hope or courage, and he was glad to learn that in England there were optimistic surgeons who shared the same conviction. Some of the lecturer's devices for tube-feeding of the patients subjected to these operations, shown on the screen, were ingenious and elaborate. Professor Zaaijer admitted, however, that so long as it was possible to do so little in the way of radical treatment of oesophageal carcinoma, special gratitude was due to men like Mr. Souttar, who had carried to such a high state of development the palliative treatment of this disease. By the use of flexible metal tubes through the previously dilated tumour area, the patient was given the opportunity of swallowing in the normal way right until the end. It was possible that Mr. Souttar had something of the idea of John Hunter, who, in the case of paralysis of the oesophagus, introduced into the stomach the skin of an eel, extended over a stiff sound, then withdrew the sound, and fed the patient through the soft tube.

Professor Zaaijer then went on to discuss cardiospasm, and the causes, not truly spasm, which gave rise to this condition. He had found a number of such cases following a long-standing abdominal ptosis. He explained by diagrams what he judged to be the mechanics of cardiospasm, and said that he had treated eight cases by the method published by Heller in 1913, splitting the circular muscle bundle of the cardia with fair success and no mortality.

Turning, finally, to the surgery of the lungs, the lecturer described the treatment of bronchiectasis as it had been developed in his clinic. Here appropriate operations had been devised at successive stages according to the extent of the disease, so as to lead up to a climax—that is to say, the operation at any stage might cure the patient, but if it failed to do so, at least it lessened the danger to the patient and eased the task of the surgeon in the wider operation which afterwards became necessary. He began with evulsion of the phrenic nerve. French authors, especially Chauffard, were very well satisfied with this procedure, which they regarded as the operation of choice; in England and Germany, however, the results did not seem to have been very good, and for his own part he had seldom seen a good result from this procedure. The second stage was thoracoplasty, but if this was practised it was advisable to remove also the intercostal muscles. Resection of the periosteum and intercostal muscles was not only in itself valuable in directly improving the therapeutic effect of the thoracoplasty, but in his opinion it lessened the shock of the operation should the thoracoplasty prove insufficient, and an intrathoracic operation in the same territory—which thus became a soft tissue operation—be necessary. Another stage was intrapleural plugging of the pleura after loosening the affected lobe as much as possible from its adhesions to the root. This method could give a complete and lasting cure by compression of the diseased lobe, and the cure was attained with the minimum of danger. Any of the different stages of the treatment might be necessary in a given case, and if one treatment proved ineffective the subsequent more radical operation could be undertaken with less risk and more promise. The lecturer showed a number of remarkable photographs illustrating his technique in these operations and the after-result, an extensive scar, but the retention of a high degree of muscular function.

The PRESIDENT, in expressing the thanks of the gathering to Professor Zaaijer, reminded the audience that the last hostile Dutchman to come to England, Admiral Tromp, sailed the Channel with a broom at his masthead, while his adversary Blake put up a whip. Their Dutch colleague on the present occasion had come, in all friendliness, with both a broom and a whip, the former to sweep away some of the difficulties with regard to lung surgery, and the latter to stimulate thought and action among British surgeons.

Mr. J. E. H. ROBERTS remarked that there was something about the northern countries of Europe which induced the surgeons there to tackle the surgery of the oesophagus. Little was heard here, however, about this noteworthy work, largely owing to ignorance of the Dutch and Scandinavian languages and literature, so that it was very useful to have surgeons coming, as Professor Zaaijer had done, to speak of their work at first hand. The lecturer's set of cases of bronchiectasis had interested him very greatly. He agreed as to the value of minor operations in many cases of unilateral basal bronchiectasis, but the trouble was that surgeons usually had to tackle the condition at a more advanced stage, when it was neither unilateral nor basal.

Sir JAMES DUNDAS-GRANT, joining in the compliments to the lecturer, commented on the absence of any mention of radium. It must not be supposed that radium was going to do away with surgery in this territory, but he thought that one could not neglect the possibilities which radium afforded. Combined with surgery of access, he believed that it would lead to much better results in the future in the conditions which had formed the subject of the lecture.

Reviews.

MODERN BIOLOGY.

THERE are many reasons for extending a welcome to a book on *Modern Biology*[1] by Mr. J. T. CUNNINGHAM. He is one of the leading biologists of our time, and has devoted a long career to the single aim of explaining how living things have become so perfectly fitted to their place in Nature. He began his investigations when Weismann was winning adherents to the doctrine that the machinery of adaptation was inherent in the germ plasm, and could not be influenced by anything which lay outside the germ plasm. From his student days onwards Mr. Cunningham has done his own observing and thinking, and soon came to the conclusion that purposive modifications of the animal body could not be explained if with Weismann we regarded the germ plasm as immune from outside influences. His own early studies, particularly those on the structural modifications which fit flatfish to a life on the sea bottom, convinced him that the essentials of Lamarck's doctrine were true, and that somehow the soma could transfer its experiences and acquired modifications to the germ plasm within it. He gave clear expression to this conviction in the introduction to Eimer's *Organic Evolution as the Result of the Inheritance of Acquired Characters*, which he translated in 1890.

In the present work Mr. Cunningham again tests his Lamarckian convictions by passing in critical review all that has fallen in recent years from laboratories where the processes of life are studied by experimental methods. His is not an armchair criticism; Mr. Cunningham is an experimental naturalist, and is therefore well qualified to estimate the value of experimental results obtained by others. He accepts the opinions of those who believe that the functions of living matter are purely physical and chemical in their nature, but refuses to believe that any combination of physics and chemistry can explain the phenomena of adaptation and evolution. The belief held by Professor T. H. Morgan, based chiefly on his well-known studies of the banana fly, that new characters arise suddenly as mutations, is rejected by Mr. Cunningham as totally inadequate to explain recapitulation in the embryo and the purposive modification of structures. All recent attempts made by experimental embryologists, experimental zoologists, and biometricians to penetrate the secrets of evolution are reviewed and their bearing on present problems examined. Mr. Cunningham reserves his most rigorous criticism for the experiments of those who, like himself, believe that characters acquired by the body can be passed on to the germ plasm, and thus become inherited. His close examination of the laborious and prolonged experiments carried out by the late Professor Kammerer is most searching and valuable. Mr. Cunningham admits that the experimental evidence in support of Lamarckism is still unconvincing, but, on the other hand, the circumstantial evidence in its favour seems to him to be overwhelming.

Mr. Cunningham was the first to apply Starling's theory of hormones to explain how characters acquired by the body or brain might, in the course of repeated generations, be transferred to the germ plasm. He illustrates his conception of the manner in which hormones may serve as messengers from the soma to the gametes by many concrete examples, and those in search of a clear statement of his views will find them in this, his latest work. If Mr. Cunningham could bring forward convincing evidence that such a transference is possible, then he would have proved a matter of the greatest importance to humanity; for if the degree and manner in which parents use their brains influence ever so slightly the facility with which their children use theirs, then the accumulated effect would, in the course of time, lead to an enormous change in human mentality. It was supposed that Professor Pavlov had proved the inheritance of conditional reflexes in animals; this claim Mr. Cunningham finds to be now withdrawn. But in some of Professor McDougall's experiments on rats there is evidence that the experience of adults may be transferred to their progeny, but even in this case Mr. Cunningham admits that the evidence may be explained otherwise than by inheritance of experience.

Some of Mr. Cunningham's experiments, carried out on soles thirty-five years ago, seem to have an important bearing on the interpretation of Professor McDougall's results. Mr. Cunningham observed that when the non-pigmented undersurface of soles was exposed constantly to light the degree of darkening which resulted varied greatly, some fish pigmenting readily, others remaining unchanged. If the tendency to the deposition of pigment was not inherent in the animal no amount of stimulation could produce pigmentation. The power to deposit pigment must first be present; light by itself cannot produce that power. This is in keeping with what is known of the human body; the power of muscle and bone to react to exercise varies enormously from individual to individual; unless that power is present in the individual's body Lamarckism can do nothing; if the power is already inherent in the body Lamarckism can elicit it, and that power, being already an intrinsic possession of the body, is passed on by heredity. The rats which solved Professor McDougall's tests were, we may well suppose, animals which already possessed a superior cerebral equipment for dealing with the experimental situations presented to them, and we may therefore suppose that it was not their experience they handed on to their progeny, but their inherited cerebral outfit. Mr. Cunningham, of course, is fully alive to such a contingency, but perhaps does not emphasize the alternative explanation sufficiently.

Although there are both minor and major matters in which biologists will disagree with views and statements made by Mr. Cunningham, all will admit he has written a book which deserves to be read and studied by medical men as well as professional biologists.

[1] *Modern Biology.* A Review of the Principal Phenomena of Animal Life in Relation to Modern Concepts and Theories. By J. T. Cunningham, M.A. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1928. (Demy 8vo, pp. xii + 244. 10s. 6d. net.)

REQUISITES AND METHODS IN SURGERY.

SENIOR students and house-surgeons are fortunate in having a few very good textbooks for their guidance, and one of these is *Requisites and Methods in Surgery*,[2] by Mr. CHARLES CATHCART of Edinburgh and Mr. JACKSON HARTLEY of Carlisle. It is published by an Edinburgh firm, and may be looked upon as the Scottish counterpart of Russell Howard's *The House Surgeon's Vade-mecum*.

This book by Cathcart and Hartley has a simple, direct, and effective atmosphere of its own. It is written in the careful and lucid style of the generation which was brought up to observe and study clinical facts for itself, and it is not surprising, therefore, that as a guide to general surgical principles, and their application to the details of practical treatment, this account of requisites and methods would be difficult to surpass. In addition, there are to be found references to all the modern methods of investigation on matters within its scope. The context is freely illustrated by means of refreshing pen-and-ink sketches. These have been skilfully executed and impart a homely touch of "local colour": the nurse holding an unruly child, and the occupant of Gatch's bed-rest indicating the Fowler position and others, could be found nowhere but north of the Tweed. The book deals in the main with minor surgery, wounds, haemorrhage, shock, fractures, dislocations, tuberculous disease of joints, minor operations, emergencies, treatment before and after operation, and anaesthesia. Students can read with profit the chapters on case-taking, bandaging, massage, bruises, and sprains. Chapters of general information include medico-legal notes, hints on *post-mortem* examinations, on hospital economy, on cutting fresh sections, on trusses and artificial limbs, and on making casts. Where treatment is mentioned actual prescriptions are given, as well as the composition of the various reagents used for special tests.

We can thoroughly recommend this book, and feel sure that it deserves an introduction beyond the portals of Edinburgh University.

[2] *Requisites and Methods in Surgery.* By Charles W. Cathcart, C.B.E., M.B., F.R.C.S.Eng. and Ed., and J. N. Jackson Hartley, O.B.E., M.B.Ed., F.R.C.S.Eng. and Ed. Edinburgh and London: Oliver and Boyd. 1928. (Cr. 8vo, pp. viii + 476; 246 figures. 12s. 6d. net.)

TEXTBOOKS OF HISTOLOGY.

DR. A. MCL. WATSON'S *Handbook of Histology*[3] may be recommended to students who are commencing the practical study of that subject. It is short, and confined to those matters which a student who is examining histological sections for the first time needs to understand. The author has apparently aimed at the greatest possible conciseness compatible with full and clear histological definition. The general plan adopted is to explain the structure of the organ by proceeding from its macroscopical to its microscopical features; from the conception thus gained the student should, without difficulty, be able to interpret his sections. The book should prove a useful and trustworthy companion in practical work.

A different standpoint is taken by Dr. H. E. JORDAN in his *Textbook of Histology*,[4] which has reached its fourth edition, and may therefore be considered to have established its reputation. The aim of the work is to present the subject in such a way as to awaken a more lively interest than is afforded by bare histological details, by associating the descriptions with considerations of practical import. With this object the subject is approached largely from the point of view of function, the known or believed function of the organ being first described, and its microscopical structure correlated with this. The result is an interesting volume, and the interest is increased by the sections on embryology and references to comparative anatomy. The book is copiously illustrated with good figures.

Professor ANGELO RUFFINI'S pamphlet on embryological technique[5] deals with the well-known difficulties attending the microscopical examination of certain ova in the early stages of development, more especially those of amphibia. The good fixation of these has always proved a troublesome matter, and Professor Ruffini claims to have worked out a method by which these difficulties are satisfactorily surmounted. His ingenuity has also invented an exact method for the orientation of the ovum in the paraffin block, of preparing a paraffin mixture which will not deform the ovum in the process of embedding, and of spreading the sections on the slide in a manner to ensure uniformity in their dimensions. The accurate determination of the mode of formation of the blastodermic layers of the ovum depends largely on perfection of technique, and Professor Ruffini appears to have made a definite contribution towards the latter.

Professor P. BOUIN'S *Eléments d'Histologie*[6] is a fairly up-to-date compilation of what is known about the anatomy and physiology of cells. After several chapters dealing with the general morphology and function of "the cell," the author proceeds to the description of tissue cells in which differentiation of form is associated with specialization of function. The first volume, now under review, is concerned with the histology of the skeletal and muscular tissues, of the blood and haemopoietic organs, the lymphatic and vascular systems. The book is intended primarily for medical students, and it is claimed that only essential descriptions are given in the main text; but, although many details of structural and functional significance and physico-chemical interest (which, as yet, are not fully explained or accepted) are printed in smaller type, there still remains much interesting matter not directly related to histology, which tends to distract the reader, and would be better introduced into a separate volume. To each section of the subject are appended a concise and useful summary and a sufficient bibliography. The numerous illustrations are beautifully reproduced and add greatly to the value of this attractive book. The second volume, which is now in preparation, will be concerned with the histology of the organs of nutrition, digestion, respiration, excretion, nervous system, and organs of reproduction.

[3] *A Handbook of Histology.* By A. McL. Watson, Ph.D. Edinburgh: E. and S. Livingstone. 1928. (Cr. 8vo, pp. xi + 207; 53 illustrations. 8s. 6d. net.)
[4] *A Text-book of Histology.* By Harvey Ernest Jordan, Ph.D. Fourth edition. New York and London: D. Appleton and Co. (Demy 8vo, xxviii + 857; 594 figures. 25s. net.)
[5] *Processi di Tecnica Embriologica ed Istologica.* Professore Angelo Ruffini. Bologna: L. Cappelli. (Cr. 8vo, pp. 109; 7 figures. L.10.)
[6] *Eléments d'Histologie*, I. Par P. Bouin. Paris: F. Alcan. 1929. (Demy 4to, pp vii + 334; 199 figures. 120 fr.)

PLASTIC SURGERY OF THE ORBIT.

SOME two years ago Dr. EASTMAN SHEEHAN of New York published a book on the *Plastic Surgery of the Nose*, which was noticed in our issue of July 10th, 1926 (p. 64). He has followed that up with another handsome volume on *Plastic Surgery of the Orbit*.[7] It is a massive volume of nearly 350 pages, of fine large clear type, and profusely illustrated with line drawings in the text and coloured plates. There is a preface by the veteran Professor PIERRE SEBILEAU of the Faculty of Medicine of Paris, and the book is dedicated to Harold Delf Gillies, whose valuable work for disfigured soldiers at the Sidcup War Hospital is so well known.

In this new book Dr. Sheehan begins with the anatomy of the parts, insisting that there can be no success in such delicate operations without a full and intelligent appreciation of the tissues and structures concerned. True to his belief, he has devoted sixty pages, with a dozen figures and nine plates, to these matters. Next, the preparation of the skin of the patient is dealt with in the same minuteness of detail, for here again the author maintains with truth that if the slightest laxity is allowed in this matter there can be no success in securing fine, little-recognizable scars, free from thickenings and from that bugbear of the skin surgeon, keloid. The preparation of the skin must be commenced many days before the operation. Here the interested co-operation of the patient is valuable in securing, through repeated steaming and massage of the skin, that evacuation of the grease glands which is necessary for the action of a delicate and efficient antiseptic. Of iodine the author will have none, since it irritates if it does not burn the skin, and gives it a leathery consistency. The preparation of grafts, both mucous membrane and skin, is described with meticulous care, for material such as this is so precious that any waste is little short of criminal, and may jeopardize a promising operation, with discouragement of the patient. Thereon follow accounts of a series of considered plans for restoration of eyelids which have suffered damage of various kinds from wounds or disease. Many of these are old familiar friends to ophthalmic surgeons, that have been handed down and practised for generations. Some of the operations are of later date, particularly those which deal with the lacrymal sac, after West's and Totti's methods, and the operations for restoration of contracted eye sockets.

At the end of the work there are two appendixes. One dealing with anaesthesia, and written by Dr. I. W. Magill of the Westminster Hospital, is excellent in its terse brevity. The second, by the author of the book, is a scathing condemnation of the use of paraffin injections; he says that the evils of this practice are now so well known to surgeons that few if any practise it, but the method still has a considerable vogue among unqualified practitioners, to the great harm of those to whom they minister. With regard to reparative operations in general the author says that these are ever fresh in their variations, but by way of warning to the venturesome he adds: "The fact is that whoever engages in this constructive branch of surgery must feel that he is 'called' to the work."

TUBERCULOSIS IN CHILDREN.

FOR some years Dr. P. F. ARMAND-DELILLE has given frequent courses of lectures at various centres in Paris on the subject of tuberculosis in children, and now one such course has been taken down as the lecturer delivered it and published in a small booklet, entitled the principal clinical aspects of tuberculosis in children.[8] This presents a very good summary of modern Continental views on an important subject by a physician with wide experience both in France and elsewhere, and it should be studied carefully by all those interested. The general etiology is first discussed, with contagion stressed as the important factor in causation, followed by sections on tuberculosis of the tracheo-bronchial glands, on generalized tuberculosis, and

[7] *Plastic Surgery of the Orbit.* By J. Eastman Sheehan, M.D., F.A.C.S. With a preface by Pierre Sebileau. New York: The Macmillan Company; London: Macmillan and Co., Ltd. (Cr. 4to, xxv + 348; 191 figures, 11 plates. 50s. net.)
[8] *Les Principaux aspects cliniques de la tuberculose infantile.* Par Dr. P. F. Armand-Delille. Les Publications Médicales. Paris: N. Maloine. 1928. (5¾ × 6, pp. 74, 5 fr.)

on tuberculosis in the various organs. An interesting section devoted to the "fever of tuberculization" is important, for it stresses the possibility of tuberculosis as a cause of obscure fever in children and discusses the differential diagnosis. In further lectures on treatment Dr. Armand-Delille deals with artificial pneumothorax, heliotherapy, and the preventive measures carried out by the "Œuvre Grancher," whereby healthy children are removed from tuberculous families. All these three methods deserve close study, and indeed the whole of Dr. Armand-Delille's remarks on this subject have a value for workers in other countries. An index would be a useful addition to this little book in future editions, and also some illustrations.

CHEMISTRY FOR STUDENTS.

SIMON and BASE'S *Manual of Chemistry*[9] is a textbook for students of medicine, pharmacy, and dentistry. The thirteenth edition now before us has been produced by Dr. KRANTZ, who is professor of pharmacy in the University of Maryland. Dr. Krantz's preface expresses the hope that the manual "will furnish to the student a clear presentation of the science, an intelligent discussion of those substances which are of interest to him and a trustworthy guide to his work in the laboratory." We have seen many books on chemistry written for students of the subjects named, and too many that fail to accomplish the objects here expressed. Their failure arises from the fact that they offer the student something to learn instead of something to understand. Krantz's work is not of that kind. It is prepared with intelligent endeavour to engage the student's interest; it not only achieves the desire above expressed, but is the most admirable volume of its kind that we have seen for a long time. It is not only a book for elementary students, but it is full of information valuable for reference after the period of academical study. No embarrassment is caused to the elementary student by this fact, because fundamental learning is distinguished in the text from supplementary information by different types of print. The choice of reactions for inclusion in the text has been most capably made with a view to effective representation of the typical characters and properties of elements and compounds, and we note with satisfaction the inclusion of many valuable tests that are not widely known. Such a book could only be produced by one who is a learned and experienced chemist. It is the kind of book to buy for a lifelong possession.

NOTES ON BOOKS.

Burdett's Hospitals and Charities[10] has always been welcome as a handy book of reference which depicts the progress of philanthropy and hospital management, and the thirty-ninth edition indicates how the problems are changing. It has been decided to publish henceforth an article at the beginning of each annual volume bringing the statistical sections into relation with the most recent developments in hospital work. In the issue for 1929 Captain J. E. Stone examines the present financial situation of the voluntary system, and considers the new sources of hospital income from patients' contributions, and the provision that has to be made for road accidents of all kinds and for middle-class patients. An appreciable enlargement of the section devoted to mental institutions has enhanced definitely the practical value of the book, and more information is now given about King Edward VII's Welsh National Memorial Association. The most generally useful section is the concise directory of medical and educational institutions, philanthropical societies, and the similar organizations controlled by the London County Council and the Metropolitan Asylums Board. New entries include accounts of the aims and organization of the Merseyside Hospital Council, the blood transfusion service of the British Red Cross, and the Liverpool Hospital for Diseases of the Heart—the only institution of the kind outside London—and a note on recent administrative changes affecting hospitals in the Transvaal Province. Throughout the book every effort has been made to bring the information completely up to date; the index is good, and this year's edition may justly claim to be an improvement upon the best of its predecessors.

With the issue of a second edition of the *Manual of Hygiene and Public Health*,[11] by Dr. JAHAR LAL DAS, officiating assistant director of public health in the province of Bihar and Orissa, opportunity has been taken to revise the text and to add several new appendixes. This textbook, written from the standpoint of Indian life, is intended to meet the needs of public health officials and students in India, and deals more particularly with conditions incidental to tropical life. The first edition was reviewed in these columns two years ago.

The fifty-first volume of the *Transactions of the Medical Society of London*[12] includes the papers communicated at its meetings during the 155th session, from October, 1927, to May, 1928. Among these are the presidential address on "Surgery in the early days of the Medical Society of London," given by Mr. H. W. Carson, F.R.C.S., in October, 1927, the Lettsomian Lectures on "Rheumatic heart disease in children" by Dr. F. J. Poynton, the Lloyd Roberts Lecture on "The criminal law and insanity" by Lord Hewart, and the society's annual oration on "The lessons of rare maladies" by Sir Archibald Garrod. Most of the papers and discussions now published in full in the *Transactions* were reported at the time in our columns.

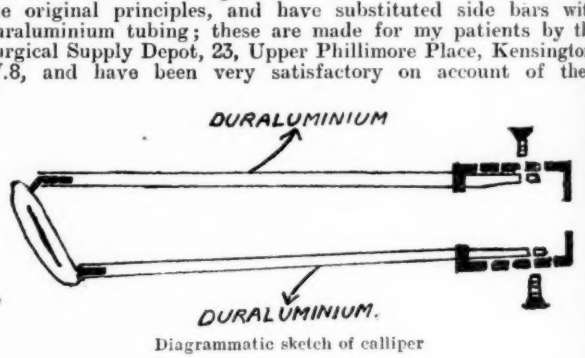
Volume xlviii of the *Transactions of the Edinburgh Obstetrical Society*[13] contains the papers read during the session 1927–28, many of which have been reported in these columns from time to time. Among the papers included is the valedictory address on "The preventive frame of mind in obstetrics" given by Professor R. W. Johnstone on relinquishing office as president.

Reprints of the various papers, memoranda, etc., contributed by the members of the staff of the Middlesex Hospital Medical School during the session 1927–28 to various British and American medical and scientific periodicals have now been collected and bound together in volume form.[14]

PREPARATIONS AND APPLIANCES.

A LIGHT TUBULAR CALLIPER.

MAJOR MEURICE SINCLAIR, C.M.G., R.A.M.C.(ret.) (London), writes: Whenever the weight-bearing function of a lower limb in an adult has to be suspended for any cause, and it is desired to permit the patient to walk with the aid of a Thomas calliper splint, the instrument shown in the accompanying diagram will be found advantageous. In it I have adhered to all the original principles, and have substituted side bars with duraluminium tubing; these are made for my patients by the Surgical Supply Depot, 23, Upper Phillimore Place, Kensington, W.8, and have been very satisfactory on account of their



Diagrammatic sketch of calliper

extreme lightness and comparative cheapness (45s.), and are every bit as solid. The comparative weights of callipers of similar sizes are interesting. One made with 3/8-inch round iron throughout was 3¾ lb., while the other, manufactured with tubing, was only 2 lb. The part of the tubular one which weighs the heaviest is the ring; so the patient not only derives great benefit from the loss of 1¾ lb. dead weight, but at once observes the lessened resistance to leverage in bringing forward the leg more easily. The gratitude expressed by the wearers has been so encouraging that I am anxious to submit the idea to the profession.

[9] *A Manual of Chemistry.* By W. Simon, Ph.D., M.D., and Daniel Base, Ph.D. Thirteenth edition, enlarged and thoroughly revised by John C. Krantz, jun., Phar.B., Sc.D. London: Baillière, Tindall and Cox. (Roy. 8vo, pp. xvi + 695; 55 figures, 6 plates. 25s. net.)

[10] *Burdett's Hospitals and Charities, 1929.* Founded by Sir Henry Burdett, K.C.B., K.C.V.O. Thirty-ninth year. London: Faber and Gwyer, Ltd., The Scientific Press. 1929. (Demy 8vo, pp. xxiv + 946. 21s. net.)

[11] *Manual of Hygiene and Public Health.* By Jahar Lal Das, D.P.H. With an introduction by Lieut.-Colonel W. C. Ross, M.B., Ch.B., D.P.H., I.M.S. Second edition. Calcutta: Butterworth and Co. (India), Ltd. 1928. (Cr. 8vo, pp. xviii + 661; 105 figures. 6s. net.)

[12] *Transactions of the Medical Society of London.* Edited by T. P. Legg, C.M.G., M.S., F.R.C.S. Volume the fifty-first. London: Harrison and Sons, Ltd. 1928. (5¼ × 8½, pp. lii + 470; illustrated.)

[13] *The Transactions of the Edinburgh Obstetrical Society.* Session 1927-1928. Vol. xlviii. Edinburgh: Oliver and Boyd. 1928. (Med. 8vo, pp. xx + 195.)

[14] *Published Papers by the Staff of the Middlesex Hospital Medical School,* 1927-28. (7¼ × 10½; illustrated.)

British Medical Journal.

SATURDAY, JANUARY 19TH, 1929.

MATERNAL MORTALITY INVESTIGATIONS.

NEARLY a year ago the Ministry of Health initiated a scheme for the investigation by local health authorities of the causes of puerperal deaths, and appointed a departmental committee to lay down the form and method of investigation and correlate the returns. This system of inquiry had been recommended by the Scottish Departmental Committee on Puerperal Morbidity and Mortality that reported in 1924, but had been anticipated in 1917 by Professor Matthew Hay, then medical officer of health for Aberdeen, who, with the concurrence of the local medical profession, at once put his scheme into action in that city. The result of its working during the ten years 1918–27 has now been published as a report to the Scottish Board of Health by Professor Hay's successor and his staff.[1] The Aberdeen report, therefore, calls for special attention and critical review, because it is the first of its kind and will give an impression of the results that may be obtained from this type of inquiry, and possibly also influence the form and fashion of subsequent reports from other areas.

During the ten-year period there were 252 deaths —a number, as the authors of the report state, "too small to permit of final conclusions," and only allowing of "certain tentative deductions which the trend of evidence would appear to warrant." Many interesting figures are given, such as the death rates at first and subsequent labours, and the influence of various personal factors—such as occupation, habits, and illegitimacy—for the most part confirming what was already known. The absence of any relationship between environmental conditions and maternal mortality is shown, the death rate in confinements in one-roomed houses being less than half that in those of four rooms and over. The death rates in the practices of midwives, medical practitioners, and institutions are compared, transferred cases being put back to the original attendant, and the mortality is found to work out at 2.3 per 1,000 deliveries for midwives, 5.6 for institutional outdoor practice, 6.9 for doctors, and 14.9 for institutional indoor practice.

There is a regrettable tendency, in the interpretation of these figures, to jump to conclusions from inadequate data. Among the midwives' cases the forceps rate was 5.8 per cent., and among the 445 cases in which the forceps were used there were no deaths. "The available evidence suggests, therefore, that so far as the midwife cases are concerned the application of the forceps has no prejudicial effect." Here the death rate is the only criterion, and no account is taken of morbidity, trauma, or recovery after invalidism with possibly permanent disability. On this principle the inference might equally well be drawn from the figures we have quoted earlier that if all the confinements in Aberdeen were conducted in one-roomed houses the maternal mortality would be halved. Then a little later we find: "It may be argued that in midwife cases there is no improper use of forceps, labour generally being advanced and dilatation commonly complete before the doctor is required to intervene, and that it is the improper use of forceps with the object of accelerating delivery that is responsible for trauma with ensuing sepsis in the practice of doctors." This assumption has truth enough in it to be accepted as a rough generalization, but it gives a wrong impression by its disregard of the conditions of medical midwifery practice. Responsibility for the "improper" use of forceps appears to be laid entirely upon the doctor, and no mention is made of the insistent pressure of the patient and her relatives on him to shorten her time of trial. Their demands may be irresistible if he is to retain his clientele. Often the sole reason for his being engaged is to secure anaesthesia, with its consequent slowing of the processes of labour, and the relief that his forceps brings.

The indoor institutional figures undoubtedly call for improvement, and in discussing the reasons for the high mortality emphasis is laid on spray or droplet infection from carriers, especially in overcrowded wards. The throat-carrier origin of streptococcal infection is accepted whole-heartedly by these observers, and colours their attitude towards puerperal infection. "Doctors, from the nature of their work, are of necessity repeatedly exposed to spray or droplet streptococcal infection, and may reasonably be assumed to have developed the degree of immunity which is necessary to the true carrier condition"—hence, it is argued, the higher incidence of puerperal sepsis in their practice. The principal suggestions made for lowering maternal mortality are the improvement and expansion of the ante-natal services, and the development of a new midwifery organization in which midwives conduct all normal deliveries while doctors provide the ante-natal services and deal with obstetrical complications. How the doctor is to be a sound practitioner of midwifery without a wide experience of normal cases is not precisely indicated.

In endeavouring to appraise the value of this very thorough investigation of ten years' puerperal deaths we may accept unhesitatingly its benefit to the locality. The collection of information of this kind is bound to tighten the strings wherever slackening is noticed—as, for example, in the high institutional death rate in Aberdeen. When adopted widely such critical surveys must tend to level up backward areas. We venture to express the hope, however, that in issuing similar reports, which are abstracted in the public press and are readily available to an uninstructed public, greater care will be taken in drawing, from small numbers and scanty data, inferences that may be open to misconstruction by those without knowledge of all the factors involved. Dr. T. F. Dewar, in his prefatory note to the report, clearly anticipates criticism of this kind directed against what he terms "tentative or provisional inferences." Nevertheless, all must agree with him that the Aberdeen inquiry has served an important purpose by "exciting a renewed interest among an extended circle upon a subject that every public health worker and good citizen must have deeply at heart."

[1] Report on Maternal Mortality in Aberdeen, 1918-27, with Special Reference to Puerperal Sepsis. 1928. H.M. Stationery Office. Price 1s. A summary of this report, from a correspondent in Scotland, appeared in the *British Medical Journal* of January 12th (p. 79).

PYORRHOEA ALVEOLARIS.

FOR years the problem of pyorrhoea alveolaris has been the battle-ground of investigators; and if it be true that doubt is the life-blood of progress the problem should be fast nearing a solution. Every pronouncement on this disease has inspired some sceptic with a diametrically opposed opinion. There are those who doubt its very existence; what we see, they maintain, is not disease, merely dirt. Others wish simply to change its name, which, by suggesting the presence of pus, may indeed serve to divert attention from the early

and less obtrusive stages of the disease. Views as to its etiology are no less varied and conflicting. There are those who maintain that pyorrhoea alveolaris is of constitutional origin: in the middle-aged to be ascribed to an arterio-sclerotic tendency, to a defect inherent in a "terminal circulation," or to premature old age of the alveolar structures; in younger persons to endocrine disturbances and vitamin deficiency. Others hold that it is a local disease of bacterial origin, beginning at the gum edge and attacking the constitutionally healthy and unhealthy alike. Some maintain, and others deny, that pyorrhoea and dental caries are mutually antagonistic. Bacteriologists are in a no happier plight. Every germ that has been held responsible has been acquitted by some sceptic or other. Even the histologists can find no measure of agreement. "Osteitis fibrosa," says one group; "Chronic inflammation," replies another; "Neither of these," maintains yet a third. Some clinical observers profess to classify their cases as true pyorrhoea, dirt pyorrhoea, pyorrhoea due to traumatic occlusion, and so forth. Others are content to avow that they cannot identify such groups. Is the disease curable or incurable? Are its effects serious or negligible? Even to these questions clinicians give the most diverse and conflicting replies.

How is the ordinary practitioner to create order out of this chaos and to harmonize the evidence supplied by his own experience? In his practice he sees pyorrhoea—real pyorrhoea with pus formation—in the young and the old, in the healthy and the unhealthy, in foul mouths and in mouths he would pass as clean. He knows that the disease can be cured by wholesale extraction of teeth, so is inclined to subscribe to the theory of a local origin. All cures short of extraction commonly fail him, and local cleanliness, which some tell him is effective both in prophylaxis and cure, he believes to be unattainable. Again, though in any particular patient he may not be certain that pyorrhoea is responsible for remote disease, he has seen enough to know that extraction is often an invaluable remedy. What can those who combine clinical and pathological experience do to resolve these doubts? An attempt is made by Mr. Humphrey F. Humphreys in a paper we publish this week at page 99. Mr. Humphreys differentiates between predisposing and exciting causes of pyorrhoea alveolaris, and among the former he cites the transitory nature of teeth and their supporting structures, and biochemical changes in calcium metabolism probably due to endocrine disturbances. Whatever may be said on behalf of the first of these causes—and explanations of pathological phenomena based on a consideration of evolutionary history are generally to be taken with some reserve—most of us, until there is further proof, would be inclined to share Mr. Humphreys's own scepticism about the second. But it is into his theory of the exciting causes that we would wish to follow him more closely. The *Leptothrix buccalis*, he maintains, acting jointly with oral secretions stagnant in the intradental spaces, produces a deposition of calculus, and thus is set up a vicious circle of irritation, pocket formation, secondary infection, and further stagnation. This description of an apparently logical sequence of events would appear, however, to need some qualification. If by oral secretion the author means normal saliva it is difficult to follow him. Mucus may stagnate, but hardly normal saliva, which, from whatever source, is always fluid. Nor can one accept, without some saving clauses, Mr. Humphreys's presentation of the part played by *Leptothrix buccalis* and calculus in the production of pyorrhoea. Does he use "calculus" and "tartar" as interchangeable terms? If so, does he differentiate between subgingival (serumal or black) tartar, which forms very slowly and is always deposited under the gum edge in masses cut off from the rest of the buccal cavity, and ordinary light-coloured tartar, which forms in large masses on any unrubbed intrabuccal portion of a tooth? Mr. J. G. Turner a few years ago showed that, whereas subgingival tartar always produces on culture a pure growth of *Leptothrix buccalis*, light-coloured tartar produces a growth of various organisms, but free from leptothrix. If, then, Mr. Humphreys by calculus means subgingival tartar, his theory as to the part played by *Leptothrix buccalis* would appear to be well founded; but if he means ordinary light-coloured tartar, or both forms of tartar, we think he is not in so strong a position. But once the leptothrix is inculpated is it necessary to suggest the complicity of oral stagnation? May not the *Leptothrix buccalis*, safely established in a periodontal sulcus and cut off from the buccal cavity and its secretions, get its supply of tartar-forming lime salts from blood serum exuded by the slightly irritated gums?

We feel that Mr. Humphreys in his general argument has gone to the root of the problem of the etiology of pyorrhoea alveolaris. His stimulating and provocative paper has moved us to make these criticisms on points of detail in the hope that useful discussion may follow on what we believe to be an important problem.

SOME EDUCATION PROBLEMS.

THE early days of each calendar year, during the Christmas vacation of the schools, witness a large number of education conferences. Owing mainly to a lack of co-ordination and an absence of direction to specific problems, the results of these gatherings are invariably disappointing. Their output is miscellaneous and indigestible. The work of some of these conferences is negligible, but that of others is often important, and an attempt to use these as a gauge of the trend of educational thought in certain circles, though difficult, is not without its value. During the present month the more influential of these pronouncements and discussions have been those concerned with the need for a closer co-operation between our educational system and the industrial and commercial life of the nation, the place of examinations in that educational system, and the importance of biology as a subject in the curriculum of secondary schools and universities or university colleges.

The first of these subjects was the main theme of Lord Londonderry's presidential address to the North of England Education Conference. It is, of course, a subject of the first importance, but not one which can profitably be discussed in any detail in this place. It is, however, some comfort to note the opinion of a responsible member of the present Government that "nothing could be more fatal to the country than that we should lose ground as an educated people under the stress of industrial and trade depression," and that "the chief guarantee of the future of our children is the undiminished provision of the means of education." A more immediate and practical application of these sentiments by the President of the Board of Education would be widely welcomed.

The second subject, that of the proper place of examinations, is of more direct interest to the medical profession, both because such tests are a necessary part of the course leading to professional qualification, and because medical practitioners in their daily work are becoming more and more aware of the deleterious

effects which the dread of examination, or the shrinking from an impending, even though not immediate, test of this nature, may have on certain types of children. In the medical course examinations must necessarily be a test of knowledge. This is no doubt true also of the general school and matriculation examinations; but the earlier we go back in the school course the more such tests should be directed towards the gauging of intelligence rather than knowledge, and this has, in fact, been recognized in such examinations of recent years. Moreover, factors other than examination results are now often taken into account in forming a judgement; but it remains true that the present compulsion to submit whole classes of pupils, rather than selected individuals, to severe external examination tests, and the growing tendency among many employers to regard success in such tests as a criterion of suitability for employment, may be in practice both dangerous and unjust. Sir Michael Sadler dealt with this subject fully in addressing the New Education Fellowship. He drew attention to a type of English folk, often refined, alert, scientific in their observation, and just in their moral judgement, who cannot reduce the operations of their minds to the currency of words; and very effectively said: "So long as most of the boys and girls of this primitive English sort could pass through childhood and youth unworried by examinations it did not matter that children of the other sort enjoyed the stimulus and reward of the examined life. But now that we are trying to sweep all English children into the net of secondary education it has become necessary to protect the interests of both sorts. The time is near when every little English child that comes into the world alive will, if it grows up, pass under the harrow of examinations. At present the harrow is blunt. But the spikes will get sharper." The reality of this danger may well be emphasized from the medical side also.

The third subject, the place of biology in an educational curriculum, is becoming yearly of more urgent importance. In general it is evident that the opportunity and the demand for biological experts in various capacities throughout the Empire is far greater than the supply; and it is at least highly probable that the number of those who cultivate this subject in institutions of university rank would be appreciably increased if it obtained a place, in an elementary form, in the curriculum of many secondary schools. The same is true of medical education. This matter was referred to at the Conference of Headmasters. Some rather wild remarks were made about the attitude of the General Medical Council, and, though it is clear that if headmasters were submitted to an examination on the character and functions of that Council they would almost all fail to pass, it may be agreed that with regard to making biology a pre-registration subject the General Medical Council moves with extreme slowness and a superabundant caution. In view of the movement for a lengthening of school education, now generally accepted except by Lord Eustace Percy, and for the completion of a full secondary school course for a large number of pupils, it would seem to be not untimely to give long notice that, as from some definite year, the age for registration as a medical student would be raised to 18 years, and that some knowledge of elementary biology would be required before registration. The Education Committee of the Council has merely raised the question in a very tentative form. In this connexion it may be well to direct attention to the need for further definition of the standard required in the preliminary scientific subjects in general, and to the short discussion in the November session of the General Medical Council raised by Mr. Monsarrat on behalf of the University of Liverpool, and by Dr. Brackenbury from the point of view of secondary schools, and reported in the *Supplement* of December 8th last (p. 245).

POTT'S FRACTURE.

ABOUT a hundred years ago that great authority Dupuytren, with all his skill and experience, felt compelled to admit that even under the most favourable conditions fractures at the ankle almost always resulted in deformity and lameness which rendered progress difficult or painful. It must be admitted that until comparatively recent times this statement remained true, as was shown by the statistics as to the Metropolitan Police published by the late Mr. Clinton Dent. But there are good grounds for the belief that very much better results are now generally obtained, thanks to the teaching of surgeons such as Sir Robert Jones and Mr. Harry Platt. Against Dupuytren's depressing prognosis may be set the dictum of Sir Robert Jones that such injuries are easy to treat if certain principles are borne in mind and followed. Recently Dr. Frank Dickson of Kansas City read an instructive and lucid paper on fractures of the ankle before the Section of Surgery, General and Abdominal, at the seventy-ninth annual session of the American Medical Association.[1] He quoted Ashurst's figures of 300 cases, and agrees with his and Platt's conclusion that Pott's fractures (abduction and external rotation) form over 80 per cent. of fractures of the ankle. The greater part of the remaining 15 to 20 per cent. are inversion fractures, which are easier to treat and less disabling ultimately. Dr. Dickson's description of the various forms of fracture of the lower ends of the leg bones and of their treatment is clear, and it is well illustrated by *x*-ray pictures. He recommends immediate reduction and the application of plaster-of-Paris, which is at once divided on each side so as to form a bivalve splint; this can be removed to permit inspection of the ankle, and, if necessary, to allow for oedema of the soft parts. In these, as in all other actual or suspected fractures, *x*-ray examination and the recording of its results is a *sine qua non*. There should be no exception to the rule that, when possible, two plates—lateral and antero-posterior—should be used, for in some cases the bone injury and displacement may be invisible from one direction, though obvious from another. We would add, too, that it is a great advantage in dubious cases to be able to compare the radiograph of the injured limb with one taken of the sound limb. From the point of view of restoration of function, it has been shown by various authorities that the broken fibula is of small importance in comparison with the concomitant displacement of the astragalus and damage to the ankle-joint. The surgeon must remember that the displacement of the astragalus is generally twofold, as radiographs will show him; it is tilted and displaced outwards, and it is also displaced backwards. As a rule the lateral displacement is easily recognized, even without the help of a radiograph, and is not likely to escape correction; backward displacement, however, is less obvious, and too often it is not properly corrected, in which case the range of dorsiflexion is more or less reduced and the disability may be permanent, unless it is corrected by a secondary operation. In these injuries the form of splint or nature of the retentive apparatus used is of minor importance so long as reduction of the deformity is complete in the first instance, which fact can be demonstrated by the entire restoration of the normal dorsiflexion movement in the ankle-joint proper, exclusive of movements of the tarsal articulations. The normal astragalo-tibio-fibular articulation is a remarkably rigid mechanism, allowing only of angular movement

[1] *Journ. Amer. Med. Assoc.*, vol. 91, No. 12, p. 845.

in the sagittal plane—that of flexion and extension—a fact which is almost completely masked by the extensive rotatory, abduction, and adduction movements immediately below it. In the event of the ankle mortise being in any way deranged the incidence of the body weight and of shocks transmitted upwards through the foot is altered prejudicially; pain and secondary osteo-arthritis follow, no matter how much the displacement may be masked by adaptation of the position of the subastragaloid portion of the foot.

NOTIFICATION AND CONTROL OF VENEREAL DISEASE.

AT a general meeting of the Society of Medical Officers of Health held in November last there was a very interesting discussion on the advisability of adopting compulsory methods in relation to any schemes in operation for dealing with venereal diseases. The three introductory papers, written from entirely different points of view, were read by Dr. A. K. Chalmers, Dr. R. A. Lyster, and Dr. William Robertson, the medical officer of health for Edinburgh. These papers, together with a report of the discussion which followed, are printed in this month's *Public Health*. It will be remembered that at the meeting of the Representative Body of the British Medical Association at Cardiff in July last a motion was proposed on behalf of the Edinburgh and Leith Division favouring compulsion "in order to secure continuance under treatment until discharged by a registered medical practitioner," and an amendment was moved by Mr. E. B. Turner in favour of the exercise of such compulsion by local option. Both amendment and motion were negatived by large majorities. The discussion was fully reported in our *Supplement* of August 4th, 1928 (p. 64). These reports may well be read in conjunction, for their subject is both important and difficult, and it is bound to come up for reconsideration from time to time. It may be recalled that a bill to give certain powers to apply compulsion to persons requiring treatment for venereal diseases was promoted by Edinburgh Corporation as a private measure last session, and was refused a second reading, after a prolonged debate, by 156 votes to 93, in the House of Commons on April 19th. Glasgow Corporation, about the same time, approved a draft bill of an even more drastic nature; a summary of its provisions was given in our issue of April 28th, 1928 (p. 727). It is therefore evident that the advocates of compulsion are strong in at least certain quarters in Scotland, and are unlikely to let matters rest. Nevertheless, there can be little doubt that the general body of medical opinion, as of public opinion, in this country will be with Dr. Chalmers rather than with Dr. William Robertson. Liberty is, fortunately, very dear to the English mind. Never in this country has compulsory submission to a particular form of medical treatment been imposed on a subject. There is compulsory confinement, under proper conditions and with very elaborate safeguards, of individuals suffering from some forms of mental disease who are unable to exercise volition of their own. There may be compulsory isolation (but not compulsory treatment necessarily) of persons suffering from certain forms of infectious disease of short and relatively definite duration. There is in certain cases compulsion on parents or guardians to see that proper treatment is secured for children who are unable to protect themselves. Beyond this, however, English law has not gone, and it is quite unlikely that public opinion will tolerate any greater element of compulsion in the sphere of venereal disease. Dr. Robertson is, of course, right when he says that "every medical officer of health knows that the liberty of the subject doctrine, if literally interpreted, would spell ruin to many of the activities directed at prevention," but he thereby begs the question. He is no doubt correct, too, when he says that the present position "is galling to the administrative officer," and that his "highly qualified lady almoner" was "disheartened and worn out" because she could not threaten defaulters with legal pains and penalties as well as physical ones. But English law has objects other than an unconditioned support of the laudable zeal of administrative officers, medical or other. Moreover, it has yet to be shown that there are any detailed administrative methods of enforcing continued treatment that would be effective in practice. The difficulties between a private practitioner and his patient might be immense, and, as one of the speakers in the discussion said, "until a recognized amount of treatment was decided upon by the profession it would simply be a question of luck whether an individual received a certificate in a fortnight or in ten years." Further, Dr. Lyster seems undoubtedly right in logic when he points out that if the arguments for compulsion be valid there might as well be compulsion to prevent, which is relatively easy, rather than to cure, which is often very difficult. As a matter of fact, the measure of success in the campaign against venereal disease already attained is not unsatisfactory, though imperfect in some 25 per cent. of the cases. The position is well set out by Dr. Chalmers in the one discussion, and by Mr. Bishop Harman in the other. There must certainly be a continuance of the present campaign of education and propaganda. There should be an increase in the facilities for obtaining skilled and continuous treatment in any localities where this is not now available or adequate, for it is the lack of these facilities which sometimes leads to discontinuance of treatment. The one direction in which it seems possible to adopt further measures is in the protection of infancy and childhood. Where a child has been born suffering from the effects of venereal disease in the parents it would be within the limits of present public policy to take measures, involving a degree of compulsion, to protect any future offspring, and the Society of Medical Officers of Health certainly came to a wise conclusion when, in the end, it resolved "to consider whether any scheme of action can be recommended in reference to the parents of children infected with venereal diseases."

HEALTH SERVICES IN IRAQ.

THE building up of the new kingdom of Iraq since 1921 has been followed with sympathetic interest in Great Britain, partly because the State owed its existence largely to the ultimate success of the forces of the Empire in the Mesopotamian campaigns, and partly because of the romance attaching to the land which includes within its boundaries Baghdad and Nineveh. In the constructive work undertaken since the establishment of the State British doctors and officials have played a considerable part, and it is interesting to learn from the report for 1925 and 1926 of the British inspector-general of health services in Iraq that, in spite of many difficulties, appreciable progress has been made in the sphere of medicine in this period. Five or six years ago the attitude of the Government towards health services was unsatisfactory, the policy being to undertake the minimum degree of responsibility in regard, for example, to the provision of hospitals, and to leave this task largely to the impoverished local authorities. Later, however, a more enlightened view gained acceptance, and in the end the Government admitted financial responsibility for all medical institutions. In recent years the main obstacles to the development of health services have been lack of funds and the difficulty of securing suitable recruits for the staff. These two factors are closely associated, and the conditions of service for local medical officers leave room for improvement. The inspector-general, Major T. J. Hallinan, takes occasion, however, to congratulate the service on possessing a solid nucleus of competent and conscientious Iraqui doctors, who have been with it from its

commencement. Valuable work has also been done by subordinate medical personnel, notably pharmacists and dressers; several pharmacists have been given special training in hospital out-patient departments before taking charge of dispensaries for which it has been impossible to obtain doctors. The shortage of State-provided hospital accommodation is accentuated by the fact that charitable institutions, although efficient where they exist, are few in number in Iraq. In the hospitals administered by the health service there were during 1926 1,190 beds, an increase of only 20 over the number of beds provided in 1924. Several additional institutions were, however, under construction, but much more extensive works are required before the hospital provision can be regarded as adequate. Schemes for the doubling of the bed accommodation at the Royal Hospital at Baghdad, and for the rebuilding of the Mosul Civil Hospital, have been submitted to the Government. Steady progress has been made in the establishment of dispensaries in the smaller towns; ten new dispensaries were opened in 1925, and ten in 1926. While deficiencies in personnel and equipment have prevented the full development of the service in the way desired by those responsible for its conduct, their efforts have been rewarded by a gratifying access of esteem in the eyes of the public, whose appreciation is reflected in the figures of attendance at the Government hospitals and dispensaries; in-patients numbered 18,756 in 1926, as against 13,632 in 1923, while the number of new out-patients rose from 886,904 in 1923 to 1,610,445 in 1926. Had facilities been available there is no doubt that the rise in the number of in-patients would have been much greater, and it seems certain that as the public demand for medical treatment becomes more extensive and insistent the Legislature will be obliged to find means of increasing the resources of the health service. Major Hallinan, in his introduction, points out that the success of any of the projects for the agricultural development by large irrigation schemes depends on a sufficiency of population to exploit the areas so gained, and that the existing population barely suffices for present labour requirements. He urges, therefore, the importance of conserving the country's potential human resources by adequate health measures—directed notably to the reduction of child mortality—and suggests that it is a matter for careful consideration by the Iraq Government whether the present rate of progress in the health service should only be maintained, or whether it would not be more advantageous, for economic reasons, to develop it at a greater rate than other departments.

BAYLISS-STARLING MEMORIAL.

THE appeal for subscriptions to a memorial to the late Professors Sir William M. Bayliss and Ernest H. Starling has up to the present resulted in a sum which, with interest, will amount to over £2,600. The sum has been contributed principally by personal friends, relations, and pupils of the two distinguished physiologists, but very liberal subscriptions have also been received from their admirers in America, various European countries—principally Germany—from learned societies, and from various physiologists and members of the medical profession in all parts of the world. The committee which has been concerned with the memorial fund considers that the objects outlined in the printed appeal have been achieved. A small part of the fund has been employed for the provision of a simple memorial tablet, designed by Professor A. E. Richardson, F.R.I.B.A., which will be erected in the entrance hall of the department of physiology and biochemistry, where it will occupy a suitable place over the bust of Sharpey. A material memorial or an annual lecture would, however, have been less acceptable to Bayliss and Starling than the provision of means whereby young workers of suitable training and ability might be attracted into these fields of study. The bulk of the sum, therefore, will be used for the creation at University College, London, of a Bayliss and Starling studentship, which will be open to a graduate or undergraduate in medicine or science of suitable standing to enable him to spend a year or more in such training in physiology and biochemistry as would fit him for research. For this purpose the sum of £2,500 will shortly be transferred to the University of London to be held in trust for the creation of such a studentship. A further sum will be added to this when the cost of the tablet and other small expenses have been covered. The Governing Body of University College has agreed to assist this scholarship in a very material way by remitting all fees for instruction and ordinary expenses payable by the selected candidate, and, further, it is hoped that it will be possible to make the first award of the scholarship in June of the present year.

SKIN CANCER IN AUSTRALIA.

EVEN sunshine may not be an unmixed blessing, and for some time it has been thought that the unenviable frequency of various forms of malignant disease of the skin in Australia is due to the abundance and peculiarly vivid power of the sun's rays enjoyed on that continent. Several Australian dermatologists, notably Molesworth and Paul, have called attention to the importance of this factor in producing rodent ulcer and epithelioma of the skin, and Dr. Herman Lawrence[1] has analysed the cases occurring in his own practice during a period of twenty years. He finds that during that time there has been a steady increase of rodent ulcers and keratoses (so often the pre-malignant stage of skin cancer). He distinguishes keratoses, rodent ulcer (perhaps better termed basal-celled epithelioma), and squamous-celled epithelioma as the epithelial triad. Now there are other countries where the sun shines just as strongly as it does in Australia, but which do not suffer to anything like the same extent from the epithelial triad. What, then, is the cause of this unfortunate pre-eminence? Dr. Lawrence suggests two reasons. In the first place, other countries where the sun's power is so manifest are chiefly inhabited by the pigmented races of mankind, who find in their darker skins the natural protection against the pathogenic properties of sunlight. Secondly, in Australia not only is there abundant sunshine, but the humidity of the atmosphere is remarkably low. In many regions in Australia the humidity is half that in southern England, while there are twice as many hours of sunshine a month. The importance of this lies in the fact that moisture in the air is a powerful absorbent of the ultra-violet rays. The irritant qualities of these rays have, of course, long been known, and it has been suspected that they were the chief factor in producing Dr. Lawrence's epithelial triad. Unexpected confirmation of this theory has been obtained by him from the case of a young man, aged only 27, who had undergone treatment by ultra-violet rays consisting of half-hour exposures of both the front and back twice a week for over a year and a half! The consequence was the formation of numerous multiple keratoses. It is true that no epithelioma was produced, but, after all, the duration of this intensive ultra-violet radiation was comparatively short, whereas dwellers in the backblocks of Australia are exposed to excessive sunlight for a lifetime. Dr. Lawrence asks if it is possible to prevent the apparent increase of skin cancer cases in Australia. He suggests that blonde individuals who produce little or no pigmentation in response to light stimulation should be discouraged from outdoor work in low humidity areas of the continent. He points out that the French already refuse blonde applicants for Government service in hot climates, since they appear to have less

[1] *The Relative Low Humidity of the Atmosphere and Much Sunshine, as Causal Factor for the Great Prevalence of Skin Cancer in Australia.* By Herman Lawrence, M.R.C.P.Ed.

resistance to tropical diseases than darker men. Otherwise he can only recommend broad-brimmed hats for men and dark veils for women; for golfers and tennis players he suggests the use of ointments and powders containing quinine, which has a special power of absorbing ultra-violet rays to produce fluorescence. For the treatment of the epithelial triad when established he speaks enthusiastically of radium, but the chief difficulty is to persuade the patients to apply for aid sufficiently early. In Australia the help of the wireless has been enlisted for this purpose, and after a broadcast by one of the higher officers of the Commonwealth Health Department on cancer, in the course of which he indicated the importance of obtaining early advice about small warty-looking formations on the skin, a considerable number of persons came up for treatment with keratoses and early rodent ulcers.

POISONING BY METACETALDEHYDE TABLETS.

IN the current (December) issue of the *Archives of Disease in Childhood*[1] Dr. Reginald Miller describes two cases of poisoning in children by "meta fuel." This preparation, which appears to consist of metacetaldehyde, is supplied in the form of white tablets to take the place of methylated spirits for lamps and stoves. As might be anticipated, the tablets are occasionally mistaken for sweets by small children; the symptoms described by the author are those of acute poisoning of the central nervous system—namely, drowsiness and convulsions. In one of these cases, a boy aged 16, there was some albuminuria, while in the other, a child aged 4, the left leg was held rigid, the right being extended in the tetany position. These tablets, attractive in appearance, though hardly so in taste, may be left within the reach of small children, and the author considers that the public should realize their poisonous properties when swallowed. We have previously made some reference to the first of these two cases (see *Epitome*, 1927, vol. ii, para. 274). Metacetaldehyde is only slowly absorbed, and the treatment should, therefore, include gastric lavage and the administration of a purge.

PHRENOLOGY AND CRIME.

IN a recent lecture[2] Dr. W. Norwood East, Medical Inspector, H.M. Prisons, reviewed the attempts which have been and are being made to recognize and treat the born criminal by the application of scientific methods. A century ago Dr. George Combe maintained that every criminal should be examined phrenologically; if his or her organs of "combativeness," "destructiveness," or "acquisitiveness" were found to be developed to an exaggerated degree, while those of "benevolence" and "conscientiousness" were undersized, then the case required the special consideration of judge and jury. Phrenological methods proved to be useless. So, too, did the methods which sought to isolate a criminal type by a study of physiognomy. A similar fate has overtaken the Lombroso school of anthropologists, who held that born criminals were marked by developmental stigmata. The investigations undertaken by Dr. East's own service, the results of which were published by the late Dr. Charles Goring,[3] demonstrated that the criminals of England could not be distinguished from her law-abiding citizens by any means known to anthropologist or anatomist. Dr. East holds that the criminologists of to-day must look to psychology for scientific guidance, both for means of recognizing the pathological criminal and for just methods of treatment. He is not over-sanguine that psychology in its present state can give effective help. He sums up his attitude to psychology thus: "Intelligence tests devised by psychologists and educationists have done much in recent years to assist us in the diagnosis of the mental condition of delinquents. By their aid subnormal mental states have emerged clearly from the material with which they were surrounded and confused. We are not in so advantageous a position when dealing with temperamental defects, and further progress in the prevention of delinquency may result if reliable tests of temperament are resolved. But the criminologist must look again to the psychologist for help in grading temperamental defect, as this presents peculiar difficulties, inimical to accuracy if the subject has already offended against the law."

[1] *Archives of Disease in Childhood*. Issued by the British Medical Association. Yearly subscription (six numbers), 25s.; a single number, 4s. 6d.

[2] *The Relation of the Skull and Brain to Crime*. By W. Norwood East, M.D.Lond., M.R.C.P.Lond. The Henderson Trust Lectures, No. VIII. Edinburgh and London: Oliver and Boyd. 1928. (Cr. 4to. pp. 28; 14 figures. 6d.)

[3] *Biometrika*, 1904. Vol. 3. Part 1.

BRITISH EMPIRE CANCER CAMPAIGN.

THE MARQUESS OF READING presided at the quarterly meeting of the Grand Council of the British Empire Cancer Campaign held on January 14th, when a number of grants were made, including a sum not exceeding £2,500 for cancer research work at St. Bartholomew's Hospital; £150 to Professor A. J. Clark, M.D., of Edinburgh for radiological research work; and a contribution of £100 towards statistical investigations being carried out by the Yorkshire Council of the Campaign. The Grand Council confirmed the recommendation that two prizes of £500 each, with an appropriate medal, should be offered in the years 1931 and 1933 respectively for the best original piece of work carried out in the British Empire on the investigation of cancer. The prizes will be known as the Garton prizes and medals, and the subjects will be chosen by the Investigation Committee of the Campaign. The competitors may be either single research workers or a team of scientists working together. The following were invited to become members of the Grand Council: Mr. Malcolm Donaldson, F.R.C.S., of St. Bartholomew's Hospital; Mr. R. G. Hogarth, F.R.C.S., of Nottingham; Major-General Sir Ernest Swinton, professor of military history at Oxford; and Mr. Cecil Rowntree, F.R.C.S., of the Cancer Hospital, London. Vacancies on the Scientific Advisory Committee were filled by nominations through the Royal Society—namely, Dr. Mervyn Gordon, F.R.S., consulting bacteriologist, St. Bartholomew's Hospital; Dr. J. C. Drummond, professor of biochemistry, University College, London; and Professor Sidney Russ, D.Sc., of the Middlesex Hospital.

THE HALF-YEARLY INDEXES.

THE usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been printed; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this desire.

THE KING'S ILLNESS.

WE understand that for the time being there is nothing of consequence to add to the information given in this column last week supplementing the authoritative medical statements printed on December 8th (p. 1051), December 15th (p. 1106), December 22nd (p. 1151), and January 5th (p. 31). The recent bulletins have all recorded quiet days; and comparing them with those issued earlier in the month we may infer, without undue optimism, that His Majesty has definitely gained ground. The outlook is more hopeful now than at any time in the past seven weeks.

THE MEDICAL USES OF RADIUM.

RECENT discussions on the use of radium in the treatment of cancer have served to emphasize the opposed attitudes of the general public and the medical profession towards new remedies for disease. During the past few months any person gaining his knowledge exclusively from the lay press might have been forgiven for concluding that radium had proved so certain a remedy against cancer that the only reasons for the continuance of surgical treatment in this disease were the shortage of radium supplies and the determination of surgeons to retain, at whatever cost to the public, a lucrative source of income. To form such a conclusion he would have required, indeed, no undue power of ratiocination; the actual statements have been made categorically and repeatedly in some of the most reputable organs of public opinion. The group mind reacting to a new therapeutic device appears to be governed by an "all or nothing" law—the device is either a panacea or it is valueless. The attitude of the medical profession by contrast has been one of scientific scepticism, which must not, however, be confounded with a mere sterile agnosticism.

If any indisputable fact has emerged from the scientific discussions on the value of radium, as contrasted with those animated by propagandist zeal, it is that there are not yet sufficient facts on which any final conclusion may be based. Admittedly there exists, in addition, some evidence suggesting that radium therapy may be proved superior to excisional surgery in the treatment of cancer in certain parts of the body, notably in the cervix uteri, the breast, the larynx, and the tongue. But it is well to bear in mind, as Mr. Victor Bonney pointed out in this *Journal* on December 8th, 1928 (p. 1064), that prognosis of cure involves an important time factor—in his view up to ten years—and that dogmatic pronouncements at this stage can be made only at the cost of scientific truth.

A favourite expedient of the popular propagandist in favour of radium therapy has been to compare the Continental and the British investigations, much to the disadvantage of the latter. The boundary method of limiting the spread of cancerous growths by surrounding them with needles containing radium has, for example, been described as a new technique emanating from the Continent, Brussels in particular. In point of fact, as Professor Joly of the Irish Radium Committee pointed out in our issue of January 5th (p. 42), the technique is not new, and it was evolved not on the Continent but in Dublin. Another popular writer has stated that whereas great progress has been made in Belgium and in Germany, "our record in this country, apart from following very slowly, may be described as *nil*." The value of such statements may perhaps be described with equal brevity. Ignorance is no excuse for those who presume to instruct the public, and incidentally to indict the scientific workers of a nation.

The papers recording work in radiotherapy by individual investigators and groups of investigators may perhaps be overlooked by those who do not regularly read the medical and scientific press and the journals of learned societies; but since 1922 a series of reports issued from the Stationery Office has made available for anyone who has cared to look for it a knowledge of systematized research in this country on the problems connected with radium therapy. The latest of these reports,[1] just issued, shows the record of work done with a stock of radium salt entrusted by His Majesty's Government to the Medical Research Council, and distributed by the Council on loan to various research centres. This report, as may be expected, is but poor reading for those who prefer final pronouncements to statistical data. No conclusions are drawn beyond those warranted by the available facts; though new methods have been developed no attempt is being made to evaluate them. The claims of any technique, it is pointed out, can be established only by a statistical inquiry after a sufficient period has elapsed since its adoption. Moreover, exploration of all the technical possibilities of radio-surgical access and of variations in dosage is essential before any final conclusion can be reached as to the value of radium in the treatment of cancer.

[1] Medical Uses of Radium. Summary of Reports from Research Centres for 1927. Medical Research Council, Special Report Series, No. 126. Price 1s. net.

PRESENT-DAY RADIOLOGICAL METHODS.

The reports from the various centres reveal a general tendency to use less intense radium foci, but with a corresponding prolongation of exposure time. Although the older practice of relying on short exposures from tubes containing as much as 20 or 30 milligrams of element still prevails in many centres for the treatment of certain cancers, notably of the cervix uteri, exposures for a week or more from tubes containing one or two milligrams are now relied upon in the treatment of cancer affecting the buccal cavity, vulva, and larynx. A similar technique has been adopted by the surgical unit of St. Bartholomew's Hospital in the treatment of a series of 27 cases of operable breast cancer. Thirteen of these cases have been apparently cured (though one died of intercurrent disease); local improvement was secured in 4, but the patients died of metastases; and 10 cases are believed to be improving. At the Middlesex Hospital, where radium therapy of breast cancer is used most frequently as supplementary to radical operation, tubes containing 10 to 20 milligrams of element are inserted into the intercostal spaces, supraclavicular fossa, and apex of the axilla, and are left in position for twenty-four hours. Visible recurrences are treated by a boundary method, which in a majority of cases appears to secure the disappearance of the local growth.

Cancer of the Cervix Uteri.

Cases of cancer of the cervix uteri are generally classified for statistical purposes into three groups—operable, borderline, and inoperable. A statistical survey is, however, complicated by the fact that some workers adopt only the first and last classification, while where all three are adopted there would probably be differences of opinion about the allocation of cases into the borderline group. Furthermore, there are degrees even of inoperability. A study of the data from the various research centres brings out the fact that whereas a considerable proportion of inoperable cases remain alive one or two years after radium treatment, this proportion is much smaller when the interval is three or four years. From this two separate conclusions may be drawn: either many cases now apparently well will recur within three or four years, or the technique has so far improved that the results really are better than those obtainable three or four years ago. Which of these conclusions is correct can be proved only after a sufficient time has elapsed. It is noteworthy that when treatment with radium is supplemented by means of *x* rays or by externally applied gamma rays, better results are obtained than when radium is employed alone. Probably results vary with the effective range of irradiation, though admittedly not with this factor alone. A patient with a purely localized growth, for example, treated by radium applied per vaginam may die of old age. One in whom the disease is a little further advanced may have, just beyond the zone of effective action, a very early growth, which would continue to develop slowly in spite of complete cure of the disease in the vagina and cervix. Recurrence *in situ* occurs only very rarely. The disease is graded, and though technical advances may extend the limits of irradiation, at present diagnosis and treatment while the disease is strictly localized affords the best chance of complete recovery.

With increasing experience has grown up more detailed and more precise knowledge of the clinical phenomena associated with the use of radium therapy. Haemorrhage, it has been found, ceases in the vast majority of cases, though in some it returns shortly before death. In inoperable cases there is usually no difficulty in getting rid of the growth in the uterus, but growth tends to continue in the deeper tissues, causing strictures. Stricture may, however, be due to the laying down of ordinary fibrous tissue.

Pelvic and rectal pain, tenesmus, and blood and mucus from the rectum, characteristic of late radium reaction, may appear six to twelve months after irradiation. Such symptoms may pass after a week or two, or, if severe, may persist for several weeks. The associated pathological changes vary in intensity from a mere oedema to a considerable pelvic infiltration with deep rectal ulceration and vesical fistula. The clinical picture, indeed, may so far simulate recurrence of cancer, with rapid extension, that it is important to stress the undesirability of repeating the radiological treatment of these cases. Fortunately, in the majority, even when the reaction is intense, symptoms subside rapidly and the tissues regenerate; in some cases repair is slow. Attempts are being made to lessen the risk of injury to the superficial tissues, without, however, appreciably diminishing the distance dose, by cutting out some of the softer rays.

Mouth and Nasopharynx.

The various methods used in the radium treatment of cancer of the tongue differ from each other in points of detail, but there is a consensus of opinion that these growths respond much better when comparatively small quantities of radium are used and allowed to act for periods of from five to eleven days than when larger quantities are used for periods of twenty-four hours or less. In some centres radium treatment of the primary growth is followed some weeks later by the surgical removal of the glands of the neck, radium being put into the glandular region to deal with any residual growth; in some, after the initial treatment of the primary growth, surface applications of radium are made to the glands; in others, irradiation has been made by the simultaneous insertion of radium into the tongue and into the glands. Some workers insert radon seeds into the tissues by means of an introducer consisting of a hollow needle down which the seed is pushed by a stylet. The method is one especially adapted to out-patient practice, but suffers from the possible disadvantage that the filtration is inadequate, the reaction in mucous membranes is more severe than with needles, and the radon is rather concentrated. These difficulties appear, however, to have been overcome at St. Bartholomew's Hospital. A slow necrosis of the alveolus, due to the tubes being placed too near the bone, occasionally follows the irradiation of mouth cases. The condition can be prevented by taking care not to give too concentrated a dose near the bone. Radium and *x*-ray ulcerations have been successfully treated by syringing sloughs with normal saline solution, and then, when these have separated, packing the ulcer crater with saline-soaked cotton-wool.

Larynx and Oesophagus.

A majority of cases of intrinsic cancer respond favourably to radium treatment; but when the cancer has transgressed the boundaries of the larynx proper improvement is rare. Of four cases of intrinsic cancer treated at St. Bartholomew's Hospital only one failed to respond favourably; but only one case in five of extrinsic cancer showed signs of improvement. Growths of the oesophagus do not appear to be benefited by radium treatment; even when temporary improvement occurs it is followed only too often by speedy relapse. The treatment of these cases raises peculiar technical difficulties. Not only is the method of approach intricate, but it is often impossible to determine the length of oesophagus involved and the extent of the lateral growth.

Cancer of the Rectum.

A combined technique of operation and irradiation is generally used in the treatment of rectal cases. A preliminary colostomy is followed by exposure of the growth from behind, with temporary closure of the anus and removal of the coccyx. An average of 14 mg. are used for the glandular areas, and 30 to 50 for the growth, and if the patient can stand a maximum dose the radium is left in for such time, not exceeding 240 hours, as will bring it to approximately 10,000 milligram-hours. The results of treatment are not considered in the report, but the indications are that operable cases are at present more likely to benefit from surgical treatment than from treatment by radium.

Sarcoma and Lympho-sarcoma.

The response of sarcoma to treatment by irradiation appears to vary with the histological nature of the growth. Of 31 cases thus treated, 17 were apparently cured, and 8 relieved; the best results were obtained in the treatment of fibro-sarcoma, the worst in the treatment of lympho-sarcoma.

Nova et Vetera.

THE ORIGIN OF "QUARANTINE."

THE word "quarantine" is, of course, synonymous with, if not derived from, the French word "quarantaine," which merely means a group of forty—be it of days or of anything else. Its application to the detention of travellers or goods on a sea or land frontier, in the interests of public health, arose from the fact that such detention was most frequently one of forty days. Of the many uses of the word in non-medical matters little need be said here.*

In its more modern application the origin of the word has been largely lost, and it has come to mean a detention of any duration, mostly on a frontier of some kind. But it has not infrequently in the past been applied also to the purely interior measure of shutting up infected persons and their families and dependants in their houses for a period of time. Defoe, in his semi-historical account of the Great Plague of London, repeatedly uses the word in this sense; and in one passage he speaks of a "demi-quarantine," as implying a detention of twenty or thirty days; and in another, of "not a quarantine of days only, but a soixantine—not only 40 days, but 60 days or longer."

A detention of some period or other, for the purposes of observation, is one of the oldest of public health measures. The seven days' isolation, outside the camp, of persons suspected of leprosy, required by the Mosaic law, was more or less of the nature of a quarantine.† At what era in history the period of forty days came to be chosen for such detention has not, it would seem, ever been clearly ascertained. It has, however, been asserted by at least one writer that a detention of forty days was first adopted during the great plague epidemic of the latter half of the sixth century, and that herein lies the true origin of the measure and of the word. The statement to this effect is so categorical, and, could it be confirmed, this early origin of a true "quarantine" would be of such interest and importance, that it has seemed worth while to follow the matter up and endeavour to search out the original authorities for the assertion. Unfortunately such endeavour has not been crowned with success.

The statement was first made in the following passage from a letter addressed, in 1819, to the then President of the Board of Trade and Treasurer to the Navy by Dr. A. B. Granville:

"The positive belief in contagion, and the consequent idea of seclusion as a means of preservation from it, can be traced to a much earlier epoch even than the Crusades; for we find both explicitly mentioned in the acts and edicts of some of the Oriental Emperors during the sixth century, issued with a view of preventing the propagation of the plague. It is there enjoined to those who come from a country known to be infected, to repair to a particular spot, there to be watched for the term of *forty days*, in order to ascertain whether they brought with them the seed of the disorder. Here then is the true origin of the word *quarantine*—and here we may place the date of the first enactment of quarantine laws, under the impression that the plague was contagious. So that these laws, far from being of the short standing of scarcely *three* centuries, reckon a succession of more than thirteen hundred years."‡

* The "King's Quarantine" denoted a "truce of 40 days, appointed by St. Louis, during which it was expressly forbidden to take any revenge" (*Chambers's Cyclopaedia*); while others define it as the forty days "allowed the friends or relations of a principal in a private war to grant or find a security" (*Murray's Dictionary*). In law the term "widow's quarantine" was given to the forty days during which a widow, entitled to a dower, had the right to remain in the chief mansion of her deceased husband" (ibid.). Robert Curzon, in his *Monasteries of the Levant*, speaks of "the Mountain of Quarantine, the scene of the forty days' temptation of our Saviour."

† Leviticus xiii. This isolation was analogous to, rather than identical with, a true quarantine; it was apparently a purely interior measure, applied to persons already showing signs of disease; while quarantine has come mainly to mean the detention of apparently healthy persons, usually at a frontier, lest they should be harbouring the germs of disease.

‡ *A Letter to the Right Hon. F. Robinson, M.P., President of the Board of Trade and Treasurer to the Navy, on The Plague and Contagion, with reference to the Quarantine Laws*, etc., by Augustus Bozzi Granville, M.D., F.R.S., F.L.S., M.R.I. London, 1819, pp. 39–40

In another letter, addressed by the same author in 1825 to the Right Hon. W. Huskisson, M.P., then President of the Board of Trade, the assertion is repeated, in a slightly different form. It is there stated positively that the forty days' quarantine was decreed in "an Edict of Justinian."

In neither letter is any indication given of the exact date, number, or title of the supposed edict. But in the earlier letter the following reference is given as the authority for the assertion: "*Follerius, in libello pro Custodiâ Pestis.*" A fairly diligent search, however, in the British Museum and other large libraries, lay and medical, has failed to bring to light this opuscule of Follerius.

The story of the great plague epidemic of Justinian's time is, of course, fairly well known. It began in Egypt in A.D. 542, spread to Syria, Byzantium, and Europe, and did not come to an end until the close of the century. It is possible—probable, indeed—that precautions of some kind, however rudimentary, were taken to check the spread of the pestilence from one country to another, or from one district to another. But, if so, no positive evidence, apart from Granville's assertion, is now available as to the nature of those precautions. It has further to be added that very considerable doubt must attach to his statement that forty days' detention was decreed in "an Edict of Justinian"; for, in the opinion of two authoritative writers on historical questions, no such law, decree, or edict was ever promulgated by Justinian. The late Dr. J. S. Reid, professor of ancient history at Cambridge, was good enough, a few years ago, to make some further researches for me in this matter, and he wrote: "I came to the conclusion that no such edict as that which Justinian was supposed to have issued in 542 against the plague ever existed." And again, the late Professor J. B. Bury, whom Dr. Reid further consulted, wrote: "No such edict as that supposed to have been issued by Justinian is extant, nor is there any reference to anything of the kind to be found in the historical authorities known to me."

Finally, Gibbon himself remarks on the lack of measures for checking the progress of the epidemic, in the following passage:

> "Those salutary precautions to which Europe is indebted for her security were unknown to the government of Justinian. No restraints were imposed on the free and frequent intercourse of the Roman provinces: from Persia to France the nations were mingled and infected by wars and emigrations; and the pestilential odour which lurks for years in a bale of cotton was imported, by the abuse of trade, into the most distant regions."*

It would seem, therefore, that the assertion that "quarantine," or a true forty days' detention of persons coming from an infected country, was an invention of the time of Justinian, must, at best, be regarded as "not proven," and must remain so unless and until the missing pamphlet of Follerius should be found and should contain some definite reference to the supposed edict enjoining that measure.

At whatever era in history the period of forty days was chosen, it is an unquestionable fact that, throughout the later Middle Ages and down to comparatively recent times, that period was most generally adopted for the detention of suspected persons. The reason for such choice has never been satisfactorily explained—unless it be, as some think, connected with the Hippocratic dictum that the fortieth day of a disease is a specially critical one.

Apart from the alleged edict (or edicts, for Granville, it will be noted, in his first letter, speaks in the plural—"the acts and edicts of some of the Oriental Emperors") of the sixth century, the earliest known record of a forty days' quarantine would seem to be contained in the first code of Venetian laws against plague, which are stated to have been drawn up probably as early as A.D. 1127. This, it is said, required all merchants and other travellers coming from the Levant to stay for forty days in the house of St. Lazarus before being allowed to enter the city.† Other instances of such true "quarantines" abound in later centuries, and it would serve but little purpose to cite specific examples. What is of more interest (and perhaps less well known) is that, so great is the power of tradition, the forty days' period of detention continued to be applied in some countries until comparatively recent times, and a few instances in support of this assertion may be given.

In Melbourne, Victoria, actually infected ships were subjected, in the earlier part of last century, to quarantine varying from seven to forty days. In the Virgin Islands forty days was the period of detention for a cholera-infected ship in the middle of the century. In like manner, in British Guiana, in 1851, when cholera was present in Jamaica, forty days' quarantine was imposed on arrivals from that island; and in 1854, when Barbados was infected, a quarantine of the same duration was, at the request of the principal inhabitants of the Guiana capital, applied to persons coming from Barbados. Again, in the Dutch possession of Curaçao, where the quarantinable diseases included "yellow fever, measles, small-pox, cholera, and all contagious diseases," actually infected ships were, in 1859, required to perform forty days' quarantine; while in another Dutch possession, Surinam, or Dutch Guiana, the same detention was imposed on cholera-infected arrivals. Later still, when, in 1874, plague (limited to five cases in the village of Namaz) had appeared in the Arabian province of Assyr, Egypt imposed a twenty-one days' quarantine on arrivals from the Hejaz, reserving the right to raise it to forty days "if positive news from a good source and from competent persons did not give assurances of an improvement in the sanitary state of Assyr and particularly of the village of Namaz."* Then, under the Austrian law of 1879, if a case of plague had occurred on a ship during its voyage, forty days' quarantine was applied in ports of that country without distinction of vessel.†

It is, however, unnecessary to quote further examples. It is beyond question that the conception of a forty days' detention—a true "quarantine"—dominated the whole world of sanitarians and administrators from quite early times down to comparatively recent decades; and this note has been written with the object of endeavouring to ascertain when that particular period came to be adopted, and in the hope that some reader may perhaps be able to throw further light upon the supposed edict, or edicts, of a Byzantine emperor or upon the lost pamphlet of Follerius.

F. G. CLEMOW, M.D.

* *Decline and Fall*, vol. v, chap. xliii.

† *The Nautical Magazine*, 1896, p. 992. Article by the late Sir Sherston Baker on "Quarantine in the United Kingdom and the Public Health Act of 1896." The authority for the statement is not given.

ASTHMA RESEARCH COUNCIL.

MEETING AT THE MANSION HOUSE.

THE objects of the newly formed Asthma Research Council were expounded, and an appeal made for financial support, at a large public meeting held at the Mansion House under the presidency of the Lord Mayor of London (Sir KYNASTON STUDD) on the afternoon of January 15th. A letter was read from Mr. Neville Chamberlain expressing the interest of the Ministry of Health in what was proposed.

Sir HUMPHRY ROLLESTON gave an address on asthma as one of a large group of idiosyncrasies. Persons who suffered from asthma and allied conditions, he said, had unluckily a special constitution, with a peculiar responsiveness to things which did not trouble ordinary people: thus a process essentially the same might result in diseases which, being in different parts of the body, appeared to be quite unlike. If the bronchial tubes of these hypersensitives were affected they had asthma; if the skin bore the brunt they got eczema; if the stomach and intestines reacted they had acute indigestion, vomiting, or "colitis." This hypersensitiveness probably played a part in other disorders, such as migraine or sick headache ("the disease of great minds"), gout (which was said to attack more wise men than fools), and even a form of epilepsy. The frequency of these diseases of allergic origin, Sir Humphry Rolleston continued, was unknown, but they were probably much commoner than might be thought. Research into the

* *Procès Verbaux* of the Constantinople Board of Health, November 17th, 1874.

† "*The Laws relating to Quarantine . . .*" by Sir Sherston Baker, London, 1679 (from which some of the other statements in the text are also quoted). In the year 1879 most nations took unusually severe precautions, owing to the outbreak of plague at Vetlianka and other places on the Volga.

causation and treatment of these many conditions would therefore benefit far more people than those who had frank asthma, and very probably would throw light on other diseases. Hypersensitiveness to foods, pollens, emanations, and so forth could be removed by desensitization, though more information was needed to perfect this method. Scientific research, said Sir Humphry Rolleston in conclusion, was so specialized that its methods and language seemed difficult and perhaps unintelligible to the outside world, but it provided the new knowledge from which reliable and simple tests for the detection of the causes of disease could be made, and so cleared the way for the prevention of disease—the ideal of medicine—or for its cure.

DR. ARTHUR F. HURST, who is chairman of the Medical Advisory Committee in connexion with the Council, said that he himself had been interested in asthma from a personal point of view for thirty-five years. The one thing he felt sure about with regard to asthma was that there was still no cure for it. He gave the audience some account of his own experiences with various treatments, including an intranasal treatment which was said to have led to the disappearance of asthma from Chicago. He had also been invited to a clinic in America where a cure by dieting was promised, but a friend who had undergone the treatment said that he preferred asthma to the diet. No wonder that the prospect of a new and well-organized attack on asthma from the point of view of causation was widely welcomed. So far it had been possible to organize three centres for research into asthma. The first was owing to the generosity of Mr. Campbell-Johnston, and was directed to methods of physical therapy. The first Research Fellow was sent to Mont Dore and Reichenhall, the French and German meccas of asthmatics, and afterwards to Vienna, Berlin, Bad Ems, and Hamburg. Recently Mr. Halley Stewart had provided a fund for the organization of asthma research clinics at Guy's and Great Ormond Street; at the latter it would be possible to attack the problem by investigating asthma in its simplest form in childhood. It was hoped before long to start asthma units at other general hospitals in London and the provinces. Dr. Hurst mentioned a number of large provincial hospitals which had agreed to provide research centres, subject to the necessary financial support from the Council, as recorded in the *British Medical Journal* of January 5th (p. 29). At Leeds General Infirmary and the Birmingham General Hospital it was hoped to start research work in the near future. At Bristol the Royal Infirmary and the University would co-operate. Only that day an offer of assistance in research had been received from the Faculty of Medicine of Sheffield University. The Council hoped to be in a position to finance further research at St. Mary's Hospital under Dr. John Freeman. At King's College the physiology of asthmatic spasm was being studied. Dr. Hurst pleaded for the endowment of whole-time or part-time fellowships which would attract men already interested in the subject and already trained as expert observers, who only required the opportunity to carry out valuable investigations. Another project was to send out one or more research fellows to study what was being done in asthma clinics in Canada, the United States, and Holland. Asthma itself, Dr. Hurst continued, hardly ever killed. Sir John Floyer, the author of the first book on the subject, "panted on to ninety," according to Dr. Johnson. But it caused much suffering and interfered with earning capacity. In some cases there was spontaneous cure, but the great majority of asthmatics had to fall back upon some palliative treatment. The injection of adrenaline made life bearable to many who would otherwise feel like the old farmer dying of asthma who told Dean Swift, "If I can get this breath once out, I'll take care it shall never get in again." But adrenaline and the various powders, cigarettes, and sprays were mere palliatives. The Council proposed to get to work on the investigation of the asthmatic constitution, and from that point of view there was a real prospect of curing asthma and not merely relieving it.

DR. HURST moved a resolution commendatory of the work of the Council, and this was seconded by DR. F. E. FREMANTLE, M.P., who, in passing, told a good story of an asthmatic lady who had sought the advice of some obvious quack, and, on being reproved by her physician, said she was sure he was a good man because he advertised in a religious paper. MR. BEN TILLETT, who also supported the resolution, spoke as one who had been often incapacitated by asthma over many years, and mentioned that on one occasion he had a severe attack while staying in a hotel in Swansea. Near the hotel was a herbalist's shop, with the words "Sure Asthma Cure" in large type in the window. He went in and found the proprietor suffering in worse extremity than his own. MR. TILLETT paid a very fine tribute to the humanity and disinterestedness of the medical profession.

Others who spoke briefly on the subject were LORD KNUTSFORD, LORD GREENWAY, and MR. P. J. HANNON, M.P., and before the meeting separated uniformed nurses collected from the audience a large number of cards bearing promises of donations.

THE HEALTH OF THE SCHOOL CHILD.

(*Concluded from page 78.*)

IN our last issue we gave a summary of the first part of the Report of the Chief Medical Officer of the Board of Education, which dealt generally with the elementary school child. The later sections of the report are concerned with exceptional children, with the children of the secondary schools, and with several special subjects of inquiry.

Difficult Children.

Increasing interest is being taken, both by school medical officers and by educationists generally, in the physical and educational problems of the mentally retarded child. Allied to these problems are those of the nervous, unstable, maladjusted, and difficult child. The subject is one that has received special attention in Canada and the United States, and as an outcome there has been, since the war, a development of what are known as "child guidance clinics." The interest arose largely through the study of problems presented by the delinquent child. This work revealed how long and complicated was the history behind the delinquent act, and thus attention was drawn to abnormal traits in behaviour. There are in this country no clinics so fully developed as those in the United States, but a beginning has been made in some London hospitals, at Tavistock Square, the Jews' Free School, and the medical department of the London County Council. A great impetus is likely to be given to the movement by the establishment next year, under the auspices of the Child Guidance Council, of the proposed child guidance clinic in London, made possible through the generosity of the Commonwealth Fund of New York. The clinic has secured the full co-operation of the London County Council, which will be represented on the board of management, and will therefore be closely associated with education and the school medical service.

Defects of Vision and Speech.

London reports a gratifying decrease in the number of children certified as blind. The number of new cases between 1918 and 1925 inclusive was on the average 77 per annum (ranging from 59 to 89). In 1926 the number was 33, and in 1927 35. An analysis of the figures shows that a considerable part of the decrease is in those cases in which blindness is associated with venereal disease, and may be due to the great improvement in supervision and treatment brought about by the scheme for the diagnosis and treatment of venereal diseases, and by the closer supervision of midwives. Investigation of the physical conditions of children with high myopia shows that the percentage of under-nourished children is two and a half times as great as among the ordinary school population, and that after allowing for the children operated upon for tonsils and adenoids the percentage requiring operation is twice as great as that found amongst ordinary children.

Dr. Betenson of Cardiff investigated the condition of 452 stammerers, of whom no fewer than 371 were boys, and

only 81 girls. He reports that there appeared to be no connexion between stammering and any of the forms of left-handedness.

School Desks.

School desks are a perennial source of interest. One after another new types of desks have been evolved, only to prove in practice not to fulfil the hopes of perfect results which have been held out. It is not good physiology for children to remain at a desk for the greater part of a morning or afternoon, and the most perfect adaptation that could be possible of desk and seat to anatomical measurements of a particular child could not ensure throughout a session that the children would maintain correct postures. There has been a revolt against foot-rests. More significant than the question of modification of school desks is the revolt against desks altogether, which is gradually gathering head, and has taken especially the form of the substitution of tables and chairs, an experiment which is being watched by the medical staff with much interest and sympathy. This reform is generally to be welcomed as it is a move towards greater freedom. The combined desk and fixed seat is rigid. Separate and movable chairs give an increase of freedom of movement which is a boon. Already desks have been banished from the infants' departments.

The Secondary School Child.

The general inference drawn from the figures and reports of the school medical officers is that the incidence of definite malnutrition is less in secondary school children than in the elementary school children. On the other hand, the incidence of subnormal nutrition is greater. Further, it appears that the state of subnormal nutrition is more common in secondary school girls than in the boys. The greater stress and competitive strain of secondary school life, acting at a time when strain has its dangers, may be one factor producing this result. Outside school environment may contain other factors of equal importance. The domestic responsibilities often undertaken by girls, limiting their opportunities for physical recreation in the open air, combined with the anxiety of examination work, may account for the incidence of subnormality falling more heavily upon them. The incidence of defects of nose and throat ranges between 25 and 29 per 1,000, which compares favourably with the figure for elementary school children, which is 67.4 per 1,000. The large majority of such patients are suffering from enlarged tonsils and adenoids. An examination of the records of reformatory school children between 12 and 17 years showed a much higher percentage of abnormal throat conditions. Among 487 boys of ages 16 to 17, 30 per cent. were found with slightly enlarged tonsils on admission, while another 9 per cent. had marked enlargement.

Writing on the occurrence of defective vision in secondary school children, Dr. Auden of Birmingham draws attention to the fact that errors of vision may remain latent in the earlier years and become apparent as the demands upon the eyesight increase in later years. He thus raises the all-important question of what is the effect of the secondary school curriculum on eyesight. If the greater demands on eyesight tend to produce defective vision, then we should expect a significant increase in its incidence as we ascend the age groups of secondary school children. Evidence on the whole confirms this expectation. Defective eyesight is more frequent in girls than boys. The general incidence of defective vision increases with age in secondary schools; further, the occurrence of more marked errors of refraction is greater the higher the age group. There is, therefore, definite deterioration of vision.

The survey of the incidence of various defects found at the medical inspection of secondary school children leads to the general conclusion that their health as a whole compares favourably with that of the elementary school children. With the exception of minor conditions of subnormality, rightly or wrongly attributed to overstrain, all other specific medical defects are less common in the secondary scholar. But there is evidence that the elementary school child is improving at a greater rate than the secondary school child. The latter, as a rule, attends a better equipped school and has a midday meal at school; there is a general tendency for his defects and their treatment to receive more attention. Yet there are disadvantages. There is usually a longer school journey; there are longer hours of study, more home-lessons, and more pressure and keenness to excel.

The Young Worker.

One of the aims of the school medical service is to turn out strong men, healthy citizens, and efficient workmen. It is claimed that this aim is to some extent secured; there is a measurable improvement in the state of the leaving children; but when they leave school they tend to go backwards in health. There is no continuity in health action apart from certain movements such as boy scouts and girl guides. There is a gap between the age of 14, when the child leaves school, and 16, when the benefits of the insurance medical service begin. Ample evidence is forthcoming that by the close co-operation of education with industry much and lasting benefit may accrue to the young employee and correspondingly to the industry in which he is engaged. There is the certifying factory surgeon, but his duties are well defined and limited. He must examine all candidates for work within a certain stipulated period of their employment inside a factory. His examination is to determine fitness or unfitness, and no more. There is evidence that the certifying factory surgeons are in favour of an arrangement by which medical histories of the child during pre-school and school age would be at their disposal, especially in cases of disease of respiratory organs, myopia, rheumatism, and heart disease. But this provision would not bridge the gap of the two years. Many large firms, by the institution of factory welfare schemes, have done much to meet the difficulty, and despite industrial depression these schemes are steadily expanding in scope and number. The chief inspector of factories reported in 1925 that this form of welfare is definitely established in industry and is operating on a far larger scale than is generally realized. The movement was initiated by philanthropists, but it was soon found that the gain in health, happiness, and working capacity of the employee more than repaid the expenses incurred in conducting the welfare schemes. Sickness decreased and output increased. A comprehensive scheme provides for the medical inspection and treatment, dental treatment, physical training and games, canteens, social training and recreation, and education of employees. Many examples are given of the arrangements made for this useful work. In a sense it is the answer to the question, "What does the business man think of the school medical service?" The business man knows that prosperity depends upon efficiency. He finds that a more efficient youth is turned over to him from the schools, and he finds that similar and continued care of his employee maintains and increases his efficiency. It is held, therefore, that more systematic action to fill the gap between 14 and 16 is needed.

Health Education.

It is urged that every elementary school in the country chargeable to the rates and taxes should give practical and sensible health teaching, and that such teaching should never be neglected or allowed to fall into abeyance. The study and practice of health must from the first form part of the everyday life of the school. Hygiene should be systematically taught at least once a week, and practised every day, throughout the nine years of the child's school life. The instruction should be given, as a rule, by the school teacher, from the one with whom the child is most often and most closely in contact. The Board of Education issued last year a new *Handbook of Suggestions on Health Education*. One part contains hints for the training of children under 11 years of age, another for the elder children. The Board has announced that a knowledge of the contents of this handbook should be regarded as part of the necessary equipment of every teacher. All classes of the community desire knowledge and guidance in regard to a healthy way of life. There has probably never been such eagerness to know about these things. Some of the great newspapers have sought to meet the need by giving health instruction in plain and homely words. Sense of proportion may at times have been lacking, but the better

sort of articles have probably done much more good than harm. For future enlightenment it is necessary that every school in the land should make the science of health an integral part of its everyday life.

Feeding of School Children.

There is much else in this report that merits close attention, particularly the beginnings of the teaching of "mothercraft" in the girls' schools; the general improvement in the development of physical education and games; and the provision of school meals. In the last section it is noted that in 1921 and 1926, the years of coal stoppage, school meals went up from an average of ten million meals a year to sixty and seventy million meals. There is, therefore, evidence that the purpose of the school meal provision is being diverted from its original purpose to become a sort of poor relief, to feed the hungry. Special investigations were made into the state of the children in South Wales and Durham, and it was found that the children were no worse than the average attending the elementary schools in their district. The investigators were surprised that there were no greater manifestations of excessive sickness and impairment of health; but whilst no literal starvation may be evident many silent people are not having as much food as is necessary for their health and mere physical efficiency, and still more are passing through a period of grave mental distress.

The Need for Research.

The section upon the investigations and research work done by the school medical officers is worthy of study. It is urged that if a good return is to be obtained for the money spent on medical inspection school authorities should encourage work of this kind, and take it into account when considering the size and nature of their medical staffs. School medical officers have exceptional opportunities for research which are denied to most of their profession, in that they have a complete section of the population available for their field of investigation.

England and Wales.

Care of the Mental Defective.

THE activities of a large number of voluntary organizations, public bodies, institutions, and homes concerned with the welfare of mental defectives and other persons coming under the supervision of the Board of Control are co-ordinated by the Central Association for Mental Welfare, whose annual report for the period 1927–28 has just been issued. The Central Association acts as a means of communication between the local voluntary organizations and Government departments and public authorities, organizes the training of teachers, visitors, attendants, and others responsible for the care and treatment of defectives, promotes, watches, supports, or opposes legislation relating to mental deficiency, and in general does whatever it can to conduce to the efficiency of voluntary work in connexion with the mentally defective. The Mental Deficiency Act, passed in December, 1927, and now in force, was drafted by the Board of Control in consultation with the president and other members of the Central Association for Mental Welfare, the association as a whole carrying out an active campaign to secure its passage. Propaganda and education—the former by means of lectures, films, and publications, the latter by means of special courses of instruction in psychiatry and allied subjects—are among the association's chief activities. During the year under review it organized separate training courses for social workers, medical officers, teachers, and magistrates. Each of these courses fulfils a vital need. The training of social workers is essential for the maintenance of an adequate supply of competent and experienced people to fill vacancies as they arise in administrative, teaching, or nursing work for defectives; the courses for medical officers provide those attending with the opportunity, usually otherwise lacking, of visiting a number of institutions, schools, and homes, and making a comparative study of methods of supervision and treatment. Magistrates require a knowledge of legal administration under the Mental Deficiency Act, and, so that injustice may be avoided, an understanding of the psychology of the juvenile offender; and, finally, the dearth of teachers for special schools and for special classes of dull and backward children can be met only by training suitable persons at courses conducted on the lines of those of the Central Association.

The Teaching of Cleanliness.

The Health and Cleanliness Council, which carries the excellent motto, "Where there's dirt there's danger," aims at spreading information by means of education and propaganda as to the advantages of cleanliness and other healthy practices, and at promoting cleanliness by co-operating as far as possible with other organizations engaged in similar work. Representatives of public health authorities, education authorities, boards of guardians, national health insurance committees, and various voluntary organizations, are associated with the council in its activities. The chief of these are the supply of posters, leaflets, and other publications to schools, clinics, and local authorities; sending lecturers and demonstrators to infant welfare centres, day nurseries, and schools at the request of the authorities concerned; and assisting organizations and local authorities during health weeks and baby weeks in connexion with local campaigns. In the council's fifth Occasional Bulletin, just issued, a survey is made of work done during 1928. This is a year the council can look back upon with some pride, for the records afford evidence of its extending activities and influence in connexion with all branches of its propaganda. A year ago the council announced that since its inauguration in 1926 it had distributed publications to 1,200 different areas; in the year under review it was in touch with approximately 2,300 districts in Great Britain. During 1927 the council sent out some 2 million publications; in 1928 this number had risen to 4½ million. The council has furthermore assisted in no fewer than 286 local health weeks, of which 156 took place during 1928. A travelling cinema under its control made its appearance during October, touring the country and displaying educational films, sometimes in streets, sometimes in halls. The council invites applications for the services of this cinema outfit, which has already been an asset to a number of localities conducting their own health campaigns. An indication of the response of school children to cleanliness propaganda is illustrated in some of their essays, written after receiving instruction from one of the council's lecturers, or by means of its literature or films, and reprinted in the Bulletin.

Health Visitors at Papworth Village Settlement.

A party of health visitors, drawn from the staffs of a number of local authorities, on January 7th visited the Papworth village settlement, where they were received by Dr. P. C. Varrier-Jones, who explained the methods employed in the cure of tuberculosis, in preventing its recurrence by providing patients with suitable homes, and in securing their re-establishment in appropriate occupations. He said that money spent on the institutional treatment of tuberculosis would be wasted unless adequate provision was made for the after-care of the patients. It was of the utmost importance that the breadwinner should be restored as soon as possible to a position in which he could maintain his family. In the course of the tour of the colony it was shown that Papworth is not only a sanatorium for the treatment of consumption, but a sociological experiment having for its purpose the effectual reduction of the incidence of the disease. The provision of the settlement is intended to counteract the common conditions under which treatment is often nullified by the return of patients to unhealthy homes, where many of them become, in spite of earlier efforts on their behalf, a burden upon their relatives and a source of infection. At Papworth, after patients have passed the convalescent stage, they become settlers in the village, single men and women being accommodated in chalets and hostels, while separate dwellings are provided for married men, where they may live with their families. In the workshops employment of

various kinds is provided, so that men and women can find callings which do not overtax their strength, but afford them an opportunity of regaining some measure of economic independence. The health visitors saw these establishments, of which an account was given in the *Journal* of June 30th, 1928 (p. 1115), on the occasion of the opening by H.R.H. the Prince of Wales of the cottages erected as a memorial to Sir Clifford Allbutt. When the grants paid by local authorities for the support of patients during their sanatorium treatment cease on the disease being arrested, the inmates of the settlement become wage-earners; they are remunerated by the management, who undertake the marketing of the goods manufactured. It is interesting to note that of the families who have entered the settlement to reside with former patients not a single member has contracted tuberculosis.

Central Midwives Board.

At a meeting of the Central Midwives Board for England and Wales on January 3rd, with Mr. L. H. West in the chair, in the absence, through indisposition, of Sir Francis Champneys, it was resolved—in view of the facts disclosed at the hearing of charges against two midwives at the last meeting of the Penal Board—that approval of training at the Wolverhampton District Nurses' Home, which expires on March 31st, should not be renewed after that date. It was decided that no new pupils should meanwhile be taken at the home, and that no application for re-approval should be considered before March 31st, 1930. Pupils now in training there who will not have completed their course by the end of next March will be transferred to other institutions or teachers. The Board appointed Dr. J. J. Jervis as its representative at the congress of the Royal Sanitary Institute, to be held at Sheffield in July, and Dr. R. A. Lyster as its representative at the congress of the Royal Institute of Public Health, to be held at Zürich in May. It was agreed that the Nether Edge Hospital, Sheffield, be permitted to train four pupils at a time instead of two.

Scotland.

Royal College of Physicians, Edinburgh.

THE annual dinner of the Royal College of Physicians of Edinburgh was held on January 11th, with Dr. R. A. Fleming, president of the College, in the chair. The principal guest was the Rt. Hon. Lord Elphinstone, K.T. The toast of "The Imperial Forces" was submitted by the vice-president, Dr. Robert Thin, and acknowledged by General Sir William Peyton, K.C.B., General Officer Commanding-in-Chief in Scotland, and by Sir Matthew H. G. Fell, K.C.B., Director-General of the Army Medical Service, who stated that the Royal Army Medical Corps was not receiving a sufficient number of new applications for commissions. The toast of "The Guests" was proposed by Dr. Alexander Goodall, and replies were given by the Rev. Dr. J. Harry Miller, moderator of the United Free Church of Scotland, the Rt. Hon. Lord Alness, Lord Justice Clerk, and Principal Sir James Irvine of the University of St. Andrews. "The Prosperity of the Royal College of Physicians" was proposed by Lord Elphinstone and acknowledged by the president.

Edinburgh Royal Infirmary.

The annual meeting of the court of qualified contributors to the Royal Infirmary, Edinburgh, was held in the City Chambers on January 7th. Lord Provost Sir Alexander Stevenson, who presided, in moving the adoption of the report, of which a summary appeared in the *British Medical Journal* for January 12th (p. 80), said that all-round progress has been a marked feature of the year, and recalled that on August 6th next the institution will have completed 200 years of work. He referred particularly to the fact that voluntary contributions last year amounted to over £72,000, an increase of £3,400 on the preceding year's total, and also to the fact that there was an increase of £5,600 on the gross income. After expressing gratitude to the students of Edinburgh University, whose efforts had raised £1,955, he said that the need for extension, which had been decided upon by the managers, was indicated by the existence of an average waiting list of over 2,000 persons.

Glasgow Royal Infirmary.

In accordance with a custom which has lasted over sixty years, the first day of the new year was celebrated at Glasgow Royal Infirmary by an annual meeting of the managers with the nurses of the institution. Lord Provost Mason, who presided, referred to the gratitude felt by the managers and by the citizens of Glasgow for the able work done by the nursing staff. Mr. James Macfarlane, chairman of the board of managers, made some reference to recent developments in the hospital, saying that he was glad that the buildings, which for the past six years had been constantly undergoing additions, were for the present complete. The high standard of efficiency which had been reached by the medical and nursing staffs, he continued, might be gathered from the fact that the average duration of stay of patients in the hospital had been reduced to seventeen days as compared with thirty-two days in 1897. The financial position of the hospital was such that all the available free capital was now in stone and lime; the buildings had been equipped to the highest possible degree, and what was chiefly required now was annual income. A favourable feature in this respect was that the contributions from employees in the past year had amounted to £28,661, which was £962 in advance of the amount contributed in this way during 1927. They were faced, however, with a deficit of £11,282, although this was smaller than the deficit a year ago, which had amounted to £12,896. The prizes gained by the nurses in examinations were thereafter presented.

Presentation to Dr. John Harrison.

A public meeting, at which the Rev. Dr. Gillies presided, was held in the Parish Church Hall, Lesmahagow, on January 11th, to celebrate the completion of fifty years of medical work in the town by Dr. John Harrison. The chairman remarked that Dr. Harrison had taken up practice in Lesmahagow shortly after graduating M.B., C.M. at Glasgow University in 1878, and for fifty years had pursued his labours in the parish of which he was a native. His work had gained great appreciation from the residents, as was shown by the representative meeting which had met to make the presentation. Unfortunately Dr. Harrison had been indisposed for some time, and was unable to be present to receive the gifts in person. Arrangements had, however, been made for a special wireless installation, by which he was able, from his bedroom, to listen to the speeches made at the meeting.

New South Wales.

[FROM OUR CORRESPONDENT IN SYDNEY.]

The University of Sydney.

THE University of Sydney a year ago, on the occasion of its seventy-fifth anniversary, launched an appeal for funds, and set the sum of £250,000 as its goal. A year was devoted to the collection, and when the fund closed in September last over £350,000 had been received. Among other sums was one of £20,000 given by Dr. Gordon Craig for the foundation of a fellowship in urology. Mr. George H. Bosch gave property to the value of roughly £250,000. Mr. Bosch in 1927 presented to the university the sum of £27,000 for the endowment of a chair of histology and embryology, and for assistance to the research work in the department of anatomy. In 1928 city property to the value of £220,000 was added. The donor, in his deed of gift, expresses the belief that it is in the best interests of the medical faculty that there should be full-time professors of medicine and surgery, and that there should be a department of bacteriology in the university, the professors devoting their whole time to university duties. Accordingly he offered the university—to provide for these appointments and for new buildings and equipment—city property and securities to the value of £220,000. From the trust fund

so established the income is to be applied in paying the professors of surgery, medicine, and bacteriology such salaries as shall enable them to devote their whole time and attention to their duties at the university. Additional income is to further the teaching and research in branches of medical science, particularly in medicine, surgery, obstetrics, bacteriology, and paediatrics. The Bosch professors of medicine and surgery are to act also as directors of studies of clinical medicine and clinical surgery, and to undertake and direct clinical research. The donor provides that the extra payment to the professors of medicine and surgery shall be conditional upon their being appointed in the first instance for seven years, subject to renewal for such a further term or terms as the Senate, on the report of a select committee, shall agree. The deed also provides that, if full-time chairs of medicine and surgery are found to be not in the best interests of the university, the Senate may appoint part-time professors, and that the income so set free shall be devoted to medical research in several branches. Any income not expended on the above-mentioned objects may be expended on departments in the faculty of medicine as shall best further the interests of the faculty, with a proviso that the expenditure shall not be more than one-sixth of the revenue from the investment of the trust funds, it being the intention of the donor that the costs of subsidiary services usually paid by the university out of its general revenue shall continue to be so paid, and not be a burden on the fund.

New B.M.A. Building, Sydney.

A contract has been signed for the erection of new premises for the New South Wales Branch of the British Medical Association. This has been rendered necessary by the resumption of the present premises by the city council for special and important purposes. A description of the design selected was published in the *Supplement* of August 11th, 1928 (p. 92). The new building, which will contain twelve stories and a basement, will be built on a 60-ft. frontage, and, in addition to lecture hall, library, and committee rooms, will accommodate the staff of the New South Wales Branch of the British Medical Association. The cost of the land was £45,000, and the building will cost £130,000. It is to be hoped, in addition to housing the Association, that the portion of the building to be let to tenants will show a profit, and that the moneys derived from this will be expended on benevolent relief and scientific work.

The College of Surgeons of Australasia.

The first annual meeting of the College of Surgeons of Australasia was held at Canberra on March 31st, 1928, with Sir George Syme, the president, in the chair. There were on the platform His Excellency Lord Stonehaven (Governor-General of the Commonwealth of Australia), His Excellency Sir John Goodwin (Governor of Queensland), the Hon. Earle Page (Treasurer of the Commonwealth), Sir Neville Howse, V.C. (Minister for Home and Territories and for Health of the Commonwealth), the Hon. W. G. Gibson (Postmaster-General of the Commonwealth), and Senator A. J. McLachlan. Delegates from the universities of Australasia were presented, and Sir John Goodwin and Mr. Victor Bonney of London were elected honorary Fellows. The Commission of the Federal Capital Territory at Canberra granted to the College, for future buildings, a site of three acres in the area reserved for scientific societies, immediately opposite the site for the University and next to the site of the Museum of Comparative Anatomy. A discussion on the improvement of hospitals and hospital methods was held, and a series of resolutions was adopted urging the need for providing opportunities for affording hospital training for surgeons, dealing with the question of payment of hospital staffs and with their appointment, and defining the views of those present on the relations between public hospitals and their patients. Resolutions emphasizing the importance of providing for post-graduate instruction in surgery and for medical research in teaching hospitals were also adopted. The rest of the meeting was devoted to scientific papers and discussions. During the latter half of 1929 clinical meetings were held in various Australian States and in New Zealand.

Reference to the fact that the *Journal of the College of Surgeons of Australasia* made its first appearance in July last appeared in the *British Medical Journal* of November 17th, 1928 (p. 906), when a brief account was given of the early history and constitution of the College and of its present position.

Correspondence.

FRACTURE CLINICS.

SIR,—The paper on fractures of the lower end of the radius in adults, by Mr. Harold Edwards and Dr. Bellis Clayton, which appeared in your last issue (p. 61), seems to me to furnish an excellent illustration of the benefit to surgery and the public which such a fracture service affords. It seems that at King's College Hospital, at any rate, the treatment of fractures of the upper extremity is well organized, more or less upon the lines advocated by Sir Robert Jones at Bath in 1925, and by Professor Hey Groves in his address published by you on December 1st, 1928 (p. 993).

It is to be hoped that fractures of the lower extremity are as efficiently treated at King's College Hospital as those of the upper, but in the former case the difficulty of want of beds may come in the way. Since the meeting of the British Medical Association at Bath in 1925 you have more than once advocated the establishment of fracture departments in general hospitals, but so far as I know without much result. This is the more surprising because at the Bath meeting of the combined Sections of Surgery and Orthopaedics the opponents of change, as represented by Mr. Gask, admitted that it was desirable that a special hospital for the treatment of fractures and for clinical instruction should be established in London. This is more than Sir Robert Jones or Professor Hey Groves has asked for. Those of us who were present at that meeting were struck by the overwhelming evidence of a desire for a radical reform of methods of dealing with fractures in hospitals.

In a letter published in your issue of December 15th, 1928 (p. 1108), Messrs. Seymour Barling and Percival Mills of Birmingham criticize the scheme outlined by Professor Hey Groves. While they recognize the importance of the part to be played by the general practitioner in the treatment of fractures, and the need for his better instruction, before or after qualification, they dislike the idea of a fracture department under a special surgeon and his team, and advocate that it should be placed under four surgeons and four assistant surgeons. In Birmingham general surgeons may be more keen upon fractures than they are in London, but if they are not, it seems likely that the "senior resident or registrar" who is to "exercise general supervision, initiate the new house-surgeons into the work of the unit, and be responsible for out-patient fractures attending the clinic" would very soon become in fact the fracture specialist to the hospital, and the outcome of the one scheme would be very much the same as that of the other.

To an onlooker the crux of the whole fracture problem is made up of the lack of interest in fractures which is shown by many general surgeons, and the lack of beds in which fractures of the lower extremity can be adequately treated; if these deficiencies were remedied sound principles and methods could be inculcated. Messrs. Barling and Mills do not discuss this last difficulty, which Professor Hey Groves would solve by utilizing the municipal hospitals and adding to their staffs and equipment. This seems to many of us a promising way out of the difficulty of want of beds, but the suggestion is often met by the objection, made again by Messrs. Barling and Mills, that its adoption would involve ignorance of fracture treatment by students. But how much useful knowledge of the treatment of fractures of the lower extremity does the student acquire under the old system, and is not the ultimate benefit to the patient to be more considered?—I am, etc.,

London, Jan. 13th. MUIRHEAD LITTLE.

TREATMENT OF VARICOSE ULCERATION.

SIR,—In your issue of January 12th (p. 83) Dr. Bourdillon asks for some further data in connexion with the report on this subject (December 22nd, 1928, p. 1144).

As regards the duration of ulceration prior to the treatment it might be possible by again going through the 1,092 returns to furnish the information in some (perhaps in most) of the cases, but many were relapses which finally healed. I will bring the matter before the committee concerned in the investigation, with a view to a decision whether this further work should be undertaken. The extent of the ulceration prior to treatment was given in diagrammatic form in most of the cases, but I found it impossible to tabulate this information.

With regard to Dr. Bourdillon's inquiry as to data concerning the use of two or more methods of treatment for one case, I at first endeavoured to collate such information, but abandoned the attempt on account of the fact that the material could not be tabulated, and would consequently in print have taken up several pages of the *Journal*, without, as I think, fulfilling any really useful purpose. In many of the cases several methods of treatment were tried, and those that were finally successful are the tabulated ones.

I am not quite clear whether Dr. Bourdillon has assumed that the 56.2 per cent. of all cases treated with rest in bed or its equivalent were healed. He states, "Since rest in bed alone will cure a large percentage of ulcers it is evident that the position of a method of treatment in Table XI may depend more on the extent to which the physicians insisted on rest (or on careful bandaging) than on the value of the special treatment employed." Here I can be of assistance to Dr. Bourdillon, since I find on reference to my notes that out of the 656 cases that were treated only eleven cases healed without the use of a direct application or treatment to the ulcers; ten were dealt with by rest in bed and bandaging or strapping, and one by strapping only without rest. With the exception of one of the cases which remained healed at the end of five years only short periods had elapsed since this healing of the ulcers and the returns of the reports of the other ten cases.

In conclusion, I would like to add that Dr. Bourdillon's criticism and suggestions are welcome and useful, since this somewhat novel method of collective investigation presents difficulties in collation; I cordially assent to his suggestion that in future investigations of a similar character the pertinent variables should be fully recognized. —I am, etc.,

Limpsfield, Jan. 14th. ARTHUR P. LUFF.

STATISTICS ON PUERPERAL MORBIDITY.

SIR,—Dr. Bethel Solomons, in your issue of December 22nd, 1928 (p. 1155), calls attention to the necessity for accuracy in taking a uniform standard of puerperal morbidity, and he refers to that which we have hitherto regarded as the B.M.A. standard. On January 5th (p. 40) Professor Francis Browne further points out that even if a standard were rigidly adhered to reliable data would not necessarily be obtained, and he illustrates his point. I entirely agree with both, for they are simply calling attention to the widespread feeling that the present statistics of puerperal morbidity are based upon data which are not only misleading but to a great extent valueless. Hitherto much confusion has existed when compiling statistics, both as regards the actual standard used and the method employed in obtaining it.

The letter by Dr. R. R. Armstrong in the *Journal* of January 12th (p. 80) should serve as a most useful fillip at a time when the true value of reliable statistics on puerperal morbidity has made itself so keenly felt. Dr. Armstrong took the trouble to approach Dr. Alfred Cox for an authoritative statement in regard to the generally accredited B.M.A. standard of 1905, and his reply is most interesting. Dr. Cox says: "It is unfortunate that this confusion should have arisen, but we shall have to abide by the decision of the Puerperal Morbidity and Mortality Committee in 1925."

It is impossible to emphasize too strongly the importance of what Dr. Solomons, Professor Browne, and Dr. Armstrong have pointed out—that is, the acceptance of a standard which will receive universal recognition in this country. We have at present two standards before us. (1) That which has been adopted by the Ministry of Health for the notification of puerperal pyrexia—that is, a pyrexia of 100.4° F. or more affecting a woman within twenty-one days after childbirth or miscarriage, and sustained for twenty-four hours on end or occurring more than once in any given twenty-four hours. (2) The other standard is that suggested by the B.M.A. Committee of 1925, which apparently differs from the former in this respect, that the words, "sustained for twenty-four hours" should read "*more* than twenty-four hours."

It is for lack of a definitely accepted standard that much valuable time has been lost and much valuable material has either been wasted or rendered incomparable. Perhaps some of your readers who are workers in this field may be able to put forward a suggestion whereby the leading maternity hospitals might be consulted in regard to the standard which each proposes to adopt for the future, as also the method of obtaining it. This would be an achievement of very considerable value.—I am, etc.,

University College, Dundee, Jan. 12th. JOHN MCGIBBON.

SIR,—I believe that a lengthy correspondence on this subject will not serve a useful purpose, but it should be of extreme value that such an important matter has been ventilated.

If a questionary were submitted to the various maternity hospitals of the kingdom I believe it would be found that the uniform standard of morbidity is the B.M.A. standard —that is, that if the temperature taken *in the mouth*, morning and evening, should reach 100° F. on any two occasions between the second and eighth days, the patient is regarded as morbid. All deaths, with or without fever, are included. We take this as our standard at the Rotunda in order that we may compare our results with others, but we are also "trying out" the Rotunda standard.

Evidently much confusion exists, and this is made very evident by the letter of Dr. Cox, quoted by Dr. Armstrong in your current issue. I suggest that the time has come to investigate this all-important subject once more, and that it might be well for those who are drawing up the programme for the next Annual Meeting of the B.M.A. to consider whether a discussion on puerperal morbidity might not be of interest and value to the profession and to the community at large.—I am, etc.,

Rotunda Hospital, Dublin, Jan. 12th. BETHEL SOLOMONS.

STREPTOCOCCAL VACCINES AND PUERPERAL SEPSIS.

SIR,—We welcome Dr. Colebrook's trenchant criticism (January 5th, p. 41) of our paper in your issue of December 15th, 1928 (p. 1082). We by no means surrender the view that streptococcal vaccine is of subsidiary importance in the prevention and treatment of puerperal sepsis as compared with conservative and aseptic midwifery, but we are glad to qualify the statement that puerperal morbidity, as defined by the Ministry of Health, is in the main due to *Streptococcus pyogenes*.

When our inquiry on the extern midwifery district of St. Bartholomew's Hospital was initiated in 1925 it was generally believed that *Streptococcus pyogenes* was responsible for the majority of morbid puerperia, and this was confirmed by Dr. Colebrook in a paper read before the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, December 3rd, 1925. Dr. Colebrook then stated: "As to whether the haemolytic streptococci play a predominant part in the localized puerperal infections one cannot speak with quite as much assurance, but our experience leads us to think that they do. Swabs taken with care from inside the cervical canal in non-septicaemic febrile cases usually give an almost pure culture of this organism." Substantiation by bacteriological tests was not possible in our own series of cases, for the women were delivered in their homes.

In view of the evidence Dr. Colebrook has now produced it seems that a whole variety of relatively innocuous

bacteria may cause pyrexia of moderate degree. Clearly, however, it is undesirable that the all-important question of the detection and prevention of major puerperal sepsis should be obscured by the consideration that cases of subordinate clinical importance are often due to indifferent organisms.—We are, etc.,

RICHARD R. ARMSTRONG.
WILFRED SHAW.

St. Bartholomew's Hospital,
London, E.C., Jan. 4th.

DENTAL CARIES AND VITAMIN D.

SIR,—The enormous importance of the fact that the family doctor and parents are for the first time presented with the possibility of preventing and of assisting in the treatment of dental caries prevails upon me to ask for further space in which to answer Dr. Sim Wallace's letter published in your issue of December 22nd, 1928.

I have renewed my acquaintance with Sir Frank Colyer's textbook, but I have failed to find any evidence which would show that an ounce or two of bacon or sugar have ever had any influence on caries. There are no records of feeding experiments with controls. There is plenty of indirect evidence that dental caries can be correlated with a diet rich in soft cereals and sugars, but the evidence is of a very general and diffuse nature. It will, of course, support equally well the lodgement theory or the deficiency theory. A school inquiry (quoted) as to the effect of eating sweets is worthless, as there must be innumerable uncontrolled factors in such work. Sir Frank Colyer's cautious conclusion—"A consideration of the question of etiology would seem to suggest that the prevalence of caries in modern races is due to the soft character of the food and the increase in the use of carbohydrates which undergo rapid fermentation"—is one to which I should imagine little exception can be taken by either side, as free use of such food implies in most cases a diminished intake of fat-soluble vitamins. In regard to bacon I still know of no evidence which shows that it is actually antagonistic to caries, and in fact a comparison of the dentures of my Jew and Gentile patients would, if it were not worthless, like so much of the quoted evidence, lead me to an opposite conclusion.

As a matter of fact the question of bacon and sugar does not affect the results of the feeding experiment (recorded on December 15th, 1928) in the very slightest, as on referring to the dietaries of the various groups recorded in Table III, as recorded in the paper itself and in the *British Dental Journal* of October 1st, 1926, it is clear that they all contained the same quantity of bacon and sugar. In spite of this the average number of new carious teeth appearing in one group was ten times that in the other group (2.4 against 0.2). Quite apart from comparisons the absolute figures are striking enough. Here were a group of children who had on the average over eight carious teeth per head and the teeth practically ceased to become carious.

To the thoughtful family doctor or parent the figures given in Table III of Mrs. Mellanby and Mr. Lee Pattison's paper will probably prove more stimulating than any theory, for here are some results of research which can be applied to practice without having to alter all the habits of the nation. We can all try it and see for ourselves. It is, of course, open for a theorist to claim that the difference between these two groups is due to the oatmeal which was in B_2 diet and absent from A_3, but the practical man will simply stop oatmeal and give cod-liver oil or some form of irradiated ergosterol and watch results.—I am, etc.,

Sheffield, Jan. 13th. A. E. BARNES.

SIR,—I think the answer to Mr. Barwise's cheery suggestion (January 5th, p. 43) that the points at issue might be settled by a few crucial feeding experiments on animals is that Mrs. Mellanby has already reported quite frankly that she has been unable always to produce experimental caries in animals by feeding them with vitamin-D-deficient or saccharine diets. She has induced caries by the former diet, but for some reason the results vary. It is obvious that there is some other factor connected with resistance. Clinically, too, every unprejudiced dental surgeon I know has met with patients whose teeth remain free from caries in spite of the fermentable carbohydrate diet they consume, their neglect of the toothbrush, and the fact that the vitamin content of their diet is the same as that of other members of their family whose teeth are often carious. Susceptibility varies, moreover, in the same individual without appreciable variation of diet.

There are, however, two recent observations which are closely relevant to this problem. Dr. E. W. Fish has contributed a cogent argument to the effect that injured dentine, its circulation being destroyed, cannot react against caries; I have reported that in certain cases of cervical caries of the teeth, with acid food debris and materies alba adhering to the gum margins, body baths of ultra-violet light render the mouth self-cleansing and the cervical surfaces insensitive. It is true that such radiation induces the formation of vitamin D in the skin, and that vitamin D increases the calcium content of the saliva; but that is certainly not the only result of irradiation. Among the other results may be the factor or factors which we are seeking. Admittedly we are in a position to recommend a diet which promotes the formation of sound teeth and makes for their freedom from caries. We can avail ourselves of Mrs. Mellanby's work as well as that of Dr. Harry Campbell and Dr. Sim Wallace; and still there will be something more to learn about the causes and treatment of dental caries.—I am, etc.,

London, W., Jan. 10th. F. TALBOT.

TREATMENT OF CANCER BY LEAD.

SIR,—In your issue of January 12th (p. 82) Mr. J. Basil Hume ends his letter with the following startling statement: "I am still of the opinion that the treatment of cancer by lead in its present form is wholly unjustifiable, if on humanitarian grounds alone."

I do not question that Mr. Hume was unable to help his patients with the preparation he used, but I do question his right to stigmatize the practice and discredit the work of others by so foolish a general statement. Others are able to help the unfortunate inoperable cases of cancer by the use of lead preparations. Why cannot Mr. Hume simply say that he was unable to do so? Instead he accuses me, and others, of unprofessional conduct, inasmuch as we continue to use a "wholly unjustifiable" remedy.

He states that his treatment converted some of his patients into physical wrecks; again I do not doubt him. But if he will come to the Bristol Royal Infirmary any Friday about 11 a.m. he will see about thirty patients with advanced and inoperable cancer, most of whom are doing very well on a lead treatment. He will find few, if any, "physical wrecks," except those just starting the treatment, and among the cases he will see:

Case W. Carcinoma of the breast, treated for fourteen months, the patient having received 0.7 gram lead metal. There has been much gain of weight and loss of symptoms; it is doubtful whether there is any cancer remaining.

Case M. Carcinoma of the prostate, treated for fifteen months. The fistula remains closed, and the patient has gained much weight, the only trouble being absence of control of the sphincter. He has received 1.2 grams of this "unjustifiable remedy."

Case D. Epithelioma of the tongue. The patient has been treated for a year, and has received 0.8 gram metal lead; is quite well, and no evidence of growth can be found.

Case Cx. Recurrent epithelioma of the lip after two operations. The patient has gained weight, lost symptoms, and appears to have been freed from his masses of cancer; he has received 0.6 gram metal lead.

Case C. Large sarcoma of ileum. The patient, who was unable to walk owing to paralysis and anaesthesia of the leg, has been treated for about a year. She is now very well and can walk several miles without any support.

Case E. Carcinoma of the rectum. The patient has been treated for ten months, and is now able to work again; has received 0.9 gram metal lead.

Case S. Rapidly growing ovarian carcinoma, with recurrence in operation scar, and ascites. The patient has been treated for seven months, and received 0.5 gram metal lead; she is now able to do her work.

These are a few instances taken at random from the patients who have received the largest amounts of this metal. Mr. Hume will see more cases than these, and can learn of other patients who, though now dead, yet proved that with this metal we have a hopeful beginning of a new system of treatment.

He can find an account of this treatment in the brochure *Chemotherapeutic Researches on Cancer*, published by Messrs. Arrowsmith, price half a crown. As it has not been reviewed so far by the English medical journals of wide circulation, Mr. Hume perhaps has some excuse for his unscientific statement.—I am, etc.,

Department of Pathology, Bristol University, Jan. 13th. A. T. TODD.

THE "CARDIAC SIGN" OF CARCINOMA OF THE STOMACH.

SIR,—In his valuable paper on carcinoma of the stomach in the *Journal* of December 29th (p. 1163) Dr. William Gordon states that diminution or absence of the cardiac dullness is a very valuable confirmatory sign when carcinoma is suspected, and he mentions only two other conditions in which this sign occurs—namely, starvation and severe diarrhoea.

If this statement goes unchallenged it may lead to many errors of diagnosis, for this absence of the cardiac dullness is very frequently found in simple cardiac weakness such as that which occurs after influenza or diphtheria; and complete absence of the cardiac dullness may sometimes occur when the heart weakness is not enough to prevent the patient from walking about and living a life of normal activity.

With regard to the explanation of this physical sign, several factors may be concerned. One factor—though not the commonest—is, I believe, a lessening of the elastic tension of the heart walls due to poor muscular tone. This is, I believe, the explanation of the cases occasionally met with where a heart is so greatly dilated that the apex may be in the seventh interspace in (or even external to) the anterior axillary line, but nevertheless the whole of the cardiac area may be resonant and no area of cardiac dullness can be defined. If a solid organ overlies one containing air, it will only give a dull note when sufficiently elastic to absorb the vibrations due to the percussion stroke, and thus prevent them from causing vibration of the air in the subjacent "resonant" organ. This change of quality owing to lowered elastic tension of an organ is well illustrated by the disappearance of the dullness of the liver in cardiac weakness, even when only slight.

These questions are discussed in a paper of mine in the *British Medical Journal* for June 27th, 1925, on "The estimation of the cardiac output"; and also in my book *The Early Diagnosis of Heart Failure* (London, John Murray; pp. 184–208).—I am, etc.,

Birmingham, Jan. 9th. T. STACEY WILSON.

SERUM TREATMENT OF SCARLET FEVER.

SIR,—With reference to Dr. W. Brown's article in the *British Medical Journal* of January 5th (p. 13) on the subject of the Dick test in scarlet fever, I notice that he calls attention to the possibility of patients treated with anti-scarlatinal serum giving a positive Dick reaction, indicating that they have probably not developed their own antitoxic immunity. The defensive forces of the body have not had to fight as they would have done in the absence of serum.

Having treated over 800 patients without a single death directly due to scarlet fever during the past three years in Darlington I have become convinced of the marvellous value of anti-scarlatinal serum in the treatment of all early severe toxic scarlet fever patients. I have not, however, tested the Dick reaction in cases treated with serum, but my attention has been drawn to the increased tendency for late complications in convalescence, particularly in the form of minor articular rheumatism with occasional cardiac involvement, beginning about the third or fourth month after attack, in patients who left the hospital perfectly fit in their fourth or fifth week. One of my serum-treated patients developed a typical attack of scarlet fever five months after the first attack, but, as Dr. Brown states, it is too early yet to look for confirmation of this aspect of the effect of serum administration, since the occurrence of second attacks of definite scarlet fever was not so rare as to escape recognition before the introduction of serum therapy.—I am, etc.,

G. A. DAWSON,
January 7th. Medical Officer of Health, Darlington.

CARDIOSPASM OR ACHALASIA OF THE CARDIA.

SIR,—It is evident that Dr. Hurst believes that those who sow the wind should reap the whirlwind; his tempestuous comments on my contribution to this intricate subject (December 15th, 1928, p. 1110) are tinctured by a dogmatism that tends to cloud rather than clarify the obscurity. At the outset he and Mr. Rake challenge my statement that "the existence of any hypertrophy of the muscular coat remains a subject of contention." That statement may appear ambiguous, but reference to the context would have saved both of them much superfluous criticism, referring, as it does, to the cardiac sphincter and not to hypertrophy of the oesophageal wall. Hypertrophy of the oesophageal wall has been found by all observers so constantly that it has become accepted as an invariable concomitant of the disease. In the matter of hypertrophy of the cardiac sphincter it should suffice that Moore has recorded two cases and Brown Kelly one, where definite hypertrophy of the sphincter was found, to justify the assertion that there remains difference of opinion as to fact.

Dr. Hurst three times refers contemptuously to the futility of founding deductions on my "one case." Yet in the *Proceedings of the Royal Society of Medicine* of January, 1915, we find (following his injunction to "consult the extensive literature") that Dr. Hurst reported "a case of achalasia of the cardia," and on the strength of that "one case" deduced his belief that the term "spasm" was incorrect and that "similarly many cases of so-called pylorospasm are due to pyloric achalasia, and ileo-caecal achalasia is the most frequent cause of ileal stasis"—sweeping conclusions to base on so slender a foundation.

Despite the implications of his declaration that "the word was first applied by me in 1914 to the cardiac sphincter," etc., the plain truth is that the term "achalasia" (*α*, not; *χαλάω*, I relax) was coined by Sir Cooper Perry and adopted by Dr. Hurst. Many years previously, in the *Transactions of the Pathological Society*, 1896, xlvii, 37, Sir Humphry Rolleston first suggested the pathology so strenuously advocated later by Dr. Hurst. It was Sir Humphry Rolleston's conception of a pathology that suggested to Sir Cooper Perry an alternative nomenclature. Since those days an enlarged experience and a more critical examination of the known facts have led many to believe that this pathology is inadequate, so that the term "achalasia" represents a premature attempt to crystallize in a word our conception of the disease. From 1913 onwards, until Walton's significant article in 1925, most of the published cases, treated by operation, were single cases.

Lest Dr. Hurst should feel any remorse for his temerity in publishing, with comments, his one case of achalasia, I offer this consolation, that more than fifty years ago (1877) James Paget reported one case of osteitis deformans so accurately and with such a wealth of acute observation that little of essential importance has since been added to our knowledge of that disease. Nor did Newton need to see more than one apple fall to enable him to make some very pertinent deductions as to the laws of gravity.

Treatment by bougies proving sometimes dangerous, often ineffective, and always tedious, a dilatable bag was devised by Plummer, who (with Vinson) reported in 1921 no fewer than 301 cases—some of these, however, required operation. The mercury tube is claimed to be more effective and to pass painlessly, but on these points there is divergence of opinion. In February, 1927, Mr. Harry Morley recorded in the *Lancet*, under the title "Cardiospasm," four cases. There emerge from his experience, from that of Walton, and from the experience of others, these facts—that the mercury tube does not always pass painlessly, that the passage is often difficult, that there is usually marked gripping of the tube, and that treatment by this means is tedious and often ineffective. Economic considerations (loss of time, loss of work, and the factor of expense) cannot be disregarded where alternative procedures are available. Mutch instances a case where the mercury tube required passing thirty-five times in one week, with little or no ultimate benefit; one of Morley's

patients, at the end of two years' treatment by the mercury tube, was "given a mercury tube to use daily." On the other hand, in Walton's fourteen cases, as in mine, operation conferred on the patient immediate, complete, and permanent cure, healing and complete convalescence being ensured within a fortnight.

Dr. Hurst might cease to refer to "Walton's operation" since the procedure of dilating digitally the cardiac orifice, after a preliminary gastrostomy, was first used and described by Mikulicz in 1881. Incidentally, Walton refers to it as "Mikulicz's operation."

Dr. Hurst seems to display a carelessness of statement and a disregard for logic when he says, "Hirschsprung's disease is probably acquired in early childhood, and is not congenital." Here he passes from the tentative "is probably" straightway to the definite "is not congenital." Again, "The relief following Walton's operation . . . the effect of which is to produce a more favourable postural tone of the sphincter" can scarcely be regarded as a pattern of lucidity; the term "postural tone" may hold some occult meaning for Dr. Hurst, but to less agile minds it requires further elucidation. In what way, precisely, is the tone of the cardiac sphincter modified by posture? Again, he tells us, "There is no question of *curing* this condition by any form of treatment . . . as the changes in Auerbach's plexus are of a permanent character, the hypertrophy and dilatation . . . remaining unaltered." It might induce Dr. Hurst to modify the confidence displayed in this *non sequitur* to learn that Plummer, out of the experience of 301 cases, declares that both hypertrophy and dilatation do disappear after the operation. The term "cure" has a definite meaning, being with reason applied to patients when all symptoms have completely disappeared, leaving no physical defect or depreciation in health. In this sense the cases treated by operation are assuredly cured, whatever term Dr. Hurst cares to apply to those treated by the mercury tube, who seem not infrequently to require daily, weekly, or monthly repetition of the treatment over an indefinite period.

There is no evidence of any change in the nervous mechanism of cases that recover. From such a mechanical obstruction death can only ensue as a direct result by starvation, or indirectly by a complication, as, for example, a mediastinitis. It must be a rare occurrence that, for lack of a gastrostomy, a case is allowed to terminate fatally from starvation alone, so that the changes in Auerbach's plexus found *post mortem* are not demonstrably due to the primary disease, but to the complication that caused death. Mere end-products seen in other terminal conditions are interesting, of course, but there are pitfalls in the way of correctly correlating them with the essential primary cause of the disease.

Professor Langmead is reported to have said at a meeting of the Brighton and Sussex Medico-Chirurgical Society that it was difficult to understand how a paralytic lesion could lead to hypertrophy down to the zone of structure, or how so much hypertrophy could result from obstruction imposed by a zone of muscle in normal tone.[1] Accepting the evidence adduced by Mr. Rake and others derived by *post-mortem* dissection of advanced cases as to degeneration of the nerve fibres, it seems strange that an isolated area of degeneration can occur as a primary lesion in an otherwise healthy individual—it is assumed to be unnecessary even to hint at any first cause such as a toxaemia from syphilis or other known antecedent of a neuritis, etc. Again, as regards "spasm," Professor Langmead is said to have referred to the positive evidence of gripping by the cardia which was vouched for by some surgeons. Somewhere in the region of the diaphragm there must be a physiological sphincter, one capable of holding back for an indefinite period a column of food, 8 inches or more, against the powerful peristaltic contraction of an oesophagus with grossly hypertrophied walls. For this tonic contraction no better term than "spasm" has yet been found.

In cured cases, as frequently figured in the literature, and in my case, there remains for a time a flaccid dilated oesophagus down which the barium meal is seen on the screen to fall like a tenuous waterfall. As surely as hypertrophy of muscle only occurs in response to an intermittent obstruction, just as surely does atrophy occur when the obstruction has been removed and the muscle ceases to have work to do. The hypertrophy of the muscle of the oesophageal wall may be expected on first principles to disappear, and even if it can be proved that the dilated tube never regains its original calibre, so long as it fulfils its function of conducting food without let or hindrance to the stomach and no symptoms reappear, the mere existence of dilatation does not invalidate the claim to "cure."

In saying that cure does not occur because "the changes in Auerbach's plexus are of a permanent character," Dr. Hurst is again guilty of a *non sequitur*, since it is by no means proved that the changes found by Mr. Rake and others have anything to do with the true cause of the disease. To describe the essential cause as being due to an inco-ordination of the neuro-muscular control of deglutition only leads us to ask what causes the inco-ordination, and to that question there has hitherto been no adequate answer.

There is a paucity of information as to the habits of life, etc., in the recorded cases; perhaps a more searching inquiry into the previous history as to imperfect mastication and the bolting of masses of solid food, suggested by my case, may establish this as one at least of the primary causes. It is true that cases occurring at so early an age as 2 years are on record, but even at that tender age the bolting of food is not unknown. There remain those said to occur within a few days or weeks of birth; these are few in number and demand very careful analysis before being accepted as true cases of cardiospasm; Professor Langmead instanced two of these juvenile cases, one of which was completely cured by suggestion.

The operation is admittedly severe, but in careful hands it is reasonably safe (none of Mr. Walton's operated cases died); recovery and cure followed with impressive rapidity and with a completeness that inevitably challenges the tedious, protracted, and expensive course of those treated by the mercury tube; the scope of the latter method would appear to be in mild cases, or in cases complicated by some other serious disease. Certainly the results achieved by the mercury tube do not prove it to be the counsel of perfection in all cases, nor do they confer on their protagonist any prescriptive right to generalize and to refer disparagingly to the deductions of those who report single cases.—I am, etc.,

Swindon, Jan. 9th. H. H. GREENWOOD.

[1] *British Medical Journal*, December 29th, 1928, p. 1180.

TONSIL AND ADENOID OPERATIONS.

SIR,—"Whenever a laryngologist brings forth some fresh instrument for the prevention of haemorrhage or to simplify the operation for the removal of tonsils and adenoids, I can tell exactly how far he has got in laryngology" is the saying of one of my former chiefs.

I can suggest no golden rule to meet every difficulty that may be encountered in the course of this perplexing operation; but having performed many thousands of operations by the guillotine method, and many hundreds by the method of dissection, perhaps I may be allowed to express an opinion on this somewhat worn subject. I have had only seven cases of haemorrhage in over 5,000 cases treated by the guillotine. Three of these required ligaturing; a gauze plug and Watson-Williams pressure forceps sufficed for the remainder. Haemorrhage after the guillotine operation usually means that a piece of tonsil has been left behind.

While admitting that dissection is the ideal surgical method, I suggest that it is one that cannot, as a general rule, be practicably applied in such large clinics as I have had to deal with. In dissection, haemorrhage will result unless care is exercised not to go beyond the capsule or to injure the faucial pillars. Anything that Mr. Tilley says must be taken as advice from a teacher; I am heartily in agreement with him.—I am, etc.,

Maidstone, Jan. 7th. J. ALDINGTON GIBB.

SIR,—I can never understand why the tonsil should recurrently be the butt of controversy as regards the risks of haemorrhage, and why a blood vessel in this situation cannot be treated as elsewhere on plain surgical principles—namely, by picking it up, leaving a forceps attached, and proceeding with the dissection. As I said some time ago at the discussion on anaesthetics at the Laryngological Section of the Royal Society of Medicine chloroform is the best anaesthetic in tonsil surgery, but it demands the best administration. If well given the patient is got quickly under without struggling, and is kept sufficiently deeply under to avoid disturbance as the dissection goes on. The instrument employed is a first essential. After many years' experience I have ended in using only my own dissector (Mayer and Meltzer), which is blunt, slightly curved at one end, and more so at the other, with which instrument the turning-out of the tonsil can be quickly and safely proceeded with; by the invention of long, curved artery forceps (Allen and Hanburys) any bleeding vessel can be readily caught. I also thought out a specially large, oval-shaped, serrated-edged guillotine, which has been very useful for adults, judging by its sale. With this the tonsil can be rapidly and safely evulsed when preferred to dissection.

I have given much attention to this subject of tonsillar haemorrhage, and would certainly never ligature if at all avoidable, since the spot tied must become septic. I consider the use of pressure forceps far preferable for safety, celerity, and efficacy. I cordially agree, therefore, with Drs. Clarke, Lindley Sewell, and Horgan, and cannot speak too strongly against ligature.—I am, etc.,

London, W.1, Jan. 12th. WM. STUART-LOW.

SIR,—Three months' use of the La Force guillotine had led me to discard it for other methods. The disadvantages of this guillotine operation appear to be, first, its tediousness, even in adult cases, and its impracticability when faced with long lists of children; secondly, its doubtfulness (in my experience) as regards complete haemostasis.

One can tell pretty well beforehand if haemorrhage is going to be troublesome by taking notice of the condition of the anterior pillar, especially in its superior part. If adherent and its margin not properly defined, haemorrhage may be troublesome, especially if the tonsil is small and fibrotic. It should be the surgeon's first thought before the use of the blunt guillotine to have a free pillar by stripping it back with tissue forceps; or if its anterior edge is well defined, and the tonsil large and not fibrotic, to see that the guillotine blade does no damage. If, by the aid of an electric head mirror (the patient on the back with the head well down, pharyngeal reflexes abolished, and the air-way clear), large cotton-wool swabs attached to tapes are placed in the tonsil fossa after complete enucleation one need have very little bleeding. If the anterior pillar is well adherent and the tonsil small and fibrotic the only practicable procedure appears to be dissection. Very little is heard nowadays about the cold wire snare which appears to be a surer method of compression than that obtained by the La Force guillotine.—I am, etc.,

Manchester, Jan. 12th. L. D. MERCER.

SIR,—After tonsillectomy, by whatever method, it always appears to be waste of time to spend "a few minutes" trying to stop haemorrhage by the uncertain method of gauze pressure when the perfect security afforded by pressure forceps and ligature can be achieved in a few seconds.—I am, etc.,

London, W.1, Jan. 10th. H. MORTIMER WHARRY.

SACRO-ILIAC PAIN.

SIR,—In your issue of December 22nd, 1928 (p. 1137), there appears a report of a discussion at the Medical Society of London on sacro-iliac pain, and some of the statements seem to call for comment.

On the question of sacro-iliac displacement, Mr. P. Jenner Verrall gives the impression that "anyone who had felt or heard the click while performing the manipulations for reduction . . . must be convinced of its existence." This same click may be produced while manipulating the sound joint, and in fact may easily be produced in any of the spinal joints, so that it need not necessarily signify the reduction of any displacement whatever. It would, however, be easy to convince patients that something had been out of place, and one rather imagines that this explanation has been used by bonesetters and osteopaths to their advantage. The sound is in every way comparable to what takes place when people "crack" their fingers. There is no necessity to produce this sound when manipulating joints, but it is useful in letting the operator know that the joint has been moved to its *full extent*.

Mr. Verrall also thinks it impossible to perform manipulations of the sacro-iliac joint otherwise than under anaesthesia. Sometimes this may be an advantage, but I am daily manipulating sacro-iliac and lumbar joints without any anaesthetic, and usually they are not painful.

Dr. Wilfred Harris is reported to have said that "American surgeons particularly . . . had helped to rescue many sufferers with chronic pain in the back from chiropractors and osteopaths." With this we can all rejoice, though had we not hitherto neglected this subject the cases would not have drifted into the hands of those other practitioners.—I am, etc.,

London, W.1, Jan. 1st. THOMAS MARLIN.

ACTINOTHERAPY AND DEAFNESS: POST HOC OR PROPTER HOC?

SIR,—The following case, which occurred in this institution, may prove of interest to your readers.

A staff nurse, who has been with us for many years, had become progressively deaf. For all practical purposes she was stone deaf. Five weeks ago she was transferred to the charge of a large ultra-violet ray room, where all types of lamps, mercury vapour, tungsten, iron-cored, and carbon lamps, were used. She was on duty several hours a day and every day. Her hearing has undergone a remarkable betterment; indeed, to-day I carried on a conversation without having to raise my voice at all.

If progressive deafness is a degenerative process, as pointed out by Mr. Fred Stoker in his paper, "The nature of progressive deafness: a degenerative disease," the revivifying action of the rays might possibly be an explanation. As, however, I am not an otologist, and my aim is merely to record a case which is exceptional in that we do not find deaf nurses so constantly exposed to ultra-violet rays, I will only add the hope that I may not have given a further impetus to the charlatanism which besets this form of treatment.—I am, etc.,

Morpeth, Northumberland, Dec. 18th, 1928. T. C. HUNTER, M.D.

SO-CALLED "WHITE ASPHYXIA" OF THE NEWBORN.

SIR,—Like many others I have read with great interest Mr. Aleck Bourne's observations on the resuscitation of the "white baby." On one point, however, I venture to disagree, and that is his condemnation of the efficacy of mouth-to-mouth insufflation. In numerous cases I have seen excellent and almost miraculous results from mouth-to-mouth breathing, care being taken to prevent inflation of the stomach through the oesophagus by placing the hand on the abdomen and exerting a fair amount of pressure. May I make the instrument makers the present of an idea and suggest a rubber teat with a valvular opening to be placed in the child's mouth and a rubber flange to protect us from the unpleasantness of the little manœuvre?—I am, etc.,

Ashton-under-Lyne, Jan. 8th. MARGARET GORMAN.

ASTHMA.

SIR,—What was the urgency or necessity for the intensive publicity campaign in the daily and evening papers of January 11th, proclaiming that there is no cure for asthma? In the past these unfortunate people, the asthmatics, have been treated as neurotics, and their symptoms stigmatized as nervous manifestations, and they were told they were incurable. While admitting that we are painfully ignorant of the full biochemical phenomena taking place in this complaint, certain procedures have

been discovered in recent years which have led to such an amelioration of symptoms as many patients are satisfied to call a cure. Instead of reiterating the ancient parrot cry that there is no cure for asthma we can now encourage the asthmatic by telling him of the great advances made in treatment, and that, with few exceptions, there is hope for all.

The following methods of outstanding value have each cured scores of cases: The regime of diet and exercise advocated by Dr. John Adam, the intravenous injection of peptone of Dr. Auld, the mixed coliform or entero-antigens of Professor Danysz, the radiation of the chest of Mr. Gilbert Scott, the use of tuberculin and other work of Professor Storm van Leeuwen, and last, but not least, the dermal reactions as elaborated by Meltzer and other American workers. Given a knowledge of the various types of asthma there is only one that is at present incurable, though even that type may be helped.

Naturally I am entirely in favour of all research which may throw light on the problems of asthma, but I consider the public will be more ready to subscribe to a venture that has paid a dividend and can promise more than to one which advertises its insolvency, especially as I, for one, believe the latter assertion to be untrue.—I am, etc.,

London, W.1, Jan. 12th. FRANK COKE.

*** While the bald statement that there is "no cure for asthma" may give a wrong impression, it is far less misleading than to announce that "a certain cure" for asthma has been found. The position was accurately and concisely stated by Sir Humphry Rolleston, Lord Dawson, Dr. Hurst, and Dr. Fremantle in their letter printed last week at page 84: "there is not any one form of treatment which is effective in all cases of asthma."

TUBERCULOSIS BOARDS.

SIR,—Dr. T. Readman, in his letter under this heading (November 10th, 1928, p. 868), makes the cruel insinuation that 75 per cent. of the men who were discharged from the army suffering from tuberculosis have not got the disease and probably never had. It would be most interesting to know the official percentage of men who were originally discharged as suffering from this disease and who have since died from it. Many of those who are left have learnt to take care of themselves, and should go on for an indefinite period, provided they are not badgered and worried over their pensions.

Dr. T. Readman also states that he is of the opinion that if a man really has tuberculosis which originated in the war he will not now be in a condition to take a railway journey of, say, four hours each way. If this is really his opinion it merely demonstrates that, although he is a medical superintendent of a sanatorium, he has not yet grasped what can be accomplished by prolonged and intelligent sanatorium treatment, followed by a quiet, well-regulated life in the country. I have personally found sanatoriums and sanatorium treatment to vary greatly in quality. If Dr. Readman's patients have all been looked upon as potential malingerers, to perhaps the extent of 75 per cent., it is not surprising that after ten years they are either dead or bedridden.

I have the misfortune to belong to the group of disabled men whom he goes to such pains to malign. I have suffered from tuberculosis for the last twelve years. At times I am perfectly healthy and strong, at others I have positive sputum, night sweats, slight fever, etc. As a result my practice is small, but nevertheless it contains three men who contracted tuberculosis in the war, and who, in consequence of the very careful life they have led, are still able to enjoy prolonged periods of almost perfect health. If they were examined at such a time by a trio of medical men with a similar outlook to Dr. Readman they would undoubtedly have their pension reduced. The hardship thus entailed would no doubt seriously and irretrievably damage, if not destroy, their chance in the gallant fight they are putting up against one of the most disheartening and treacherous of diseases.—I am, etc.,

December 19th, 1928. M.B., CH.B.

LIPIODOL.

SIR,—May I express my agreement with Drs. F. G. Chandler and W. Burton Wood (January 12th, p. 84) in their dislike of the scalpel incision as a preliminary to lipiodol injection. Contrary to your reviewer I feel much safer with an instrument with a sharp (but short) point. When a moderately blunt point was used I found that much greater care was required in order to avoid injury to the posterior wall following the sudden cessation of resistance as the anterior wall is penetrated; this danger is increased by the fact that the trachea is so elastic that considerable flattening may take place before it is pierced. However sharp the instrument used, anyone with practice in pneumothorax treatment will have no difficulty in feeling the lack of resistance as the point enters the lumen of the trachea.—I am, etc.,

Mundesley, Jan. 14th. ANDREW MORLAND.

"THE RIGHT TO PRACTISE."

SIR,—Section 34 of the Medical Act, quoted by Dr. J. Gordon Macqueen, clearly defines what a "qualified medical practitioner . . ." means "*when used in any Act of Parliament.*" This in no way defines who shall or shall not practise. It is illogical to conclude that a person not "registered" is not a "duly qualified medical practitioner." A duly qualified medical practitioner is not bound to register. Such a person would have every "right" to practise, and would still legally be a "duly qualified practitioner."

I quite agree with Mr. W. E. Hempson that if every degree or diploma was taken away a man could still practise medicine or surgery, *but as an unqualified practitioner.* In fairness to me, he must see that my remarks applied to the discussion so far as a "qualified" medical practitioner was concerned.—I am, etc.,

St. Leonards, Jan. 5th. A. G. NEWELL, M.D.

Obituary.

FERNAND WIDAL, M.D.,

Professor in the Faculty of Medicine, University of Paris.

WE greatly regret to announce the death, on the night of January 14th, of Professor Fernand Widal. Our Paris correspondent, Dr. Gustave Monod, writes:

The standard-bearer of French medicine is dead. Cerebral haemorrhage has suddenly destroyed that beautifully organized brain. All round the world let us observe one minute's silence.

Widal was born in Algeria in 1862. An exceptionally brilliant student, he climbed up quite young the stiff steps of the various concours leading to professorship. Laboratory work appealed to him from the start, and the combination of both the gift for research and the gift of a born clinician seems to give the explanation of his exceptional contribution to modern medicine. Let us mention his method of cytodiagnosis, the agglutination reaction in typhoid fever which bears his name throughout the world, his studies on the influence of sodium chloride upon oedema. With Chantemesse he has been one of the promoters of typhoid vaccination. The hall-mark of his work is experimental accuracy, and his publications are clear and precise, giving every opportunity and facility for control.

Those who have visited his wards at the Hôpital Cochin know what an organizer he was. Every patient was examined systematically by the staff, and every morning the master sat at the bedside and started a sort of Socratic exposition, asking questions and inspiring answers. He began with the first-year man, and finally himself concluded in a few words. Once a week the theatre was packed to the ceiling when he delivered a clinical lecture, speaking for an hour in his easy way without referring to any notes. Those who knew him more intimately can be the witnesses of what careful preparation led to his apparent facility.

Widal was, and will remain, in our thoughts perpetually young. He said he had no time to grow white hair. His secret was work and the love of the young ones. Official

honours came in showers from his own country and from every scientific centre. But neither titles nor ribbons nor the praise of the world were his reward. May he rest in peace—he who has been to scientists the pioneer, to his patients the doctor, to his pupils "*le Patron*."

WILLIAM LATIMER STOREY, M.D.,

Honorary Secretary, Belfast Division, British Medical Association.

WE regret to have to record the death of Dr. W. L. Storey, one of the best-known medical practitioners in Northern Ireland, which occurred at Belfast on January 4th.

William Latimer Storey was a native of Quebec, but left Canada for Ireland at an early age, settling in Belfast, where he was educated. He received his medical training at Queen's College in that city, and graduated M.D., B.S. in the Royal University of Ireland in 1889. In the years that followed he built up a considerable practice in the city of his adoption, and became a prominent figure among his colleagues there. He developed and maintained a lively interest in professional affairs, more especially on the medico-political side. A Fellow of the Ulster Medical Society, he filled the office of librarian for many years.

To the British Medical Association Dr. Storey gave ungrudging service. He was elected honorary secretary of the Belfast Division in 1914, and held that office without a break until the time of his death; in the years 1915–18 he acted as representative of the Division in the Representative Body of the Association, and he had also served for seven years as a member of the Irish Committee. During the past eighteen months he visited headquarters in London from time to time as a member of the Propaganda Subcommittee.

A colleague writes: The untimely death of Dr. Storey has awakened widespread regret among the members of the medical profession in Belfast, by whom he was held in universal respect and esteem, both on account of his outstanding gifts and his high character. Although naturally of a modest and retiring disposition, he took an active part in the various medical organizations. His frequent contributions to the proceedings of the Ulster Medical Society were all carefully prepared, elegant in composition, and invariably illuminated by irresistible flashes of humour. It is, however, as secretary of the Belfast Division of the British Medical Association that he will be best and longest remembered. His labours on its behalf were unceasing and indefatigable. He carried on a perpetual propaganda for the enrolment of new members, and never ceased his efforts to interest his professional brethren in the important issues that came up for consideration by the Representative Body. He leaves behind him very fragrant memories and a vacant position which will not easily be filled. The regret at his death and the sympathy with his sorrowing relatives experienced in Belfast are shared by all those at the headquarters of the Association, who realized and appreciated his great services.

SIR DAVID SERJEANT, M.D.,

Camberwell.

WE have to announce the death of Sir David Serjeant, which occurred at his home in Camberwell on January 12th, a few days before the date on which he would have attained the age of 99.

David Maurice Serjeant was the son of a lawyer in Huntingdonshire, and was born at Ramsey in that county in January, 1830. While he was in his teens he was apprenticed to a Peterborough surgeon, but at the age of 22 he went to Australia, where, rejecting an offer of a position in the civil service, he decided to try his fortune in the gold-fields. Success did not attend his efforts, and he became successively gardener, painter, paperhanger, and lawyer's clerk in Melbourne—then in the early stages of its development—and played in the first two intercolonial cricket matches in Australia for Victoria against New South Wales. He was the last survivor of the teams. In 1859 he returned to England and resumed his medical studies at Guy's Hospital, graduating M.D.St. And. and obtaining the diploma M.R.C.S.Eng. in 1862 and the L.S.A. a year later. Serjeant afterwards spent several years in the medical service of the P. and O. line as a ship surgeon, ultimately settling down in Peckham Road, Camberwell, about sixty years ago, when he became medical superintendent of the infirmary now known as St. Giles's Hospital.

Apart from his professional duties Serjeant took an active part in the life of the district, and had held many public offices, having been a vestryman, a guardian of the poor, and a councillor and alderman of the borough of Camberwell. In politics he was a strong Conservative, and gave effective support to the local party organization; it is only two years since he made his last public speech at the Peckham Conservative Club. It was claimed on his behalf that he was the oldest Volunteer in the country, and he preserved his association with the auxiliary forces during the war, when he was medical officer to the Camberwell National Reserve. His knighthood was conferred upon him in 1922 in recognition of his public services in various spheres of activity.

Sir David Serjeant delighted in reminiscences of his early life, and often recalled his experiences in the days of the gold rush in Australia. He was particularly proud of the fact that he had played the first ball in the first intercolonial cricket match at Melbourne, then Port Phillip. The development of Camberwell, which he had watched in its growth from a wealthy semi-rural residential district to a closely built, densely populated area, was a continuous source of interest to him, and he had often described the striking changes in society and transport which occurred in his lifetime. It is significant of his affection for the district in which he laboured that he showed no desire to leave it when he retired. Until a few months ago he was a familiar figure in the neighbourhood, and it was in a street near his home, early last November, that he fractured his leg as the result of a fall, from the effects of which he never fully recovered. His wife died about twenty years ago; he had three daughters and one son, all of whom, with the exception of one daughter, entered the medical profession.

THOMAS EDWARD HOLMES, M.D., D.P.H.,

Medical Officer of Health for Nottinghamshire.

WE regret to have to announce that Dr. T. E. Holmes, medical officer of health for Nottinghamshire, died on December 24th, 1928, at the age of 52.

Thomas Edward Holmes received his medical education at the University of Cambridge and at Guy's Hospital, graduating B.Ch.Camb. in 1900, M.B. in 1901, and proceeding M.D. four years later. In 1909 he obtained the Diploma in Public Health of the English Conjoint Board. After serving as house-physician and ophthalmic house-surgeon at Guy's Hospital and as clinical assistant at the Evelina Hospital for Sick Children he was appointed assistant physician and pathologist to the Royal Hospital for Sick Children and Women at Bristol. Subsequently he entered the public health service on the staff of the Nottingham County Health Department, where he was employed successively as assistant and deputy to the medical officer of health before being himself appointed to that office, with the duties also of chief tuberculosis officer and school medical officer for the county, in 1925. During the war he held a temporary commission as major in the R.A.M.C. In the British Medical Association his main interest was in the scientific side, and at the Annual Meeting at Nottingham in 1926 he was vice-president of the Section of Public Health. He was a Fellow of the Royal Society of Medicine, of the Royal Sanitary Institute, and of the Society of Medical Officers of Health.

A colleague writes: Dr. Holmes witnessed great developments in public health work in Nottinghamshire. While he was cautious to a degree, once he was convinced that it was not in advance of public opinion, he did all he could to forward any new movement that he felt would benefit the community. He was anxious that public money should not be wasted, and in his department the spending of every penny was carefully watched. Unknown to many of his colleagues he suffered for years from a severe physical disability, and the courage and persistence with which he carried on to the end is an example to all. He had a

strong sense of the responsibility of his post, but to understand him it was necessary to see him off duty and in his own home. His sudden death is greatly regretted by all who came into contact with him. Dr. Holmes leaves a widow and one child.

THE LATE DR. F. W. TUNNICLIFFE.

DR. T. W. PRESTON, assistant physician to the Croydon General Hospital, writes:

Although only associated with the late Dr. F. W. Tunnicliffe in the capacity of a ward clerk at King's College Hospital, his personality imbued me with such deep respect that I crave space for these few lines of appreciation. As a teacher of therapeutics and practical medicine his place will be difficult to fill; as a physician he evoked my admiration from the first. He was a sound diagnostician; and, moreover, his interest, even in the most hopeless case, was not merely to conjecture the probable *post-mortem* findings, but to apply his knowledge of therapeutics for the patient's comfort and benefit. Although untiring in his efforts to teach any student who followed him round the wards, he always remembered that the occupants of the beds were living beings like himself, and that their interests must be his primary consideration—not only in the healing of their bodies, but in the avoidance of the wounding of their susceptibilities. Truly a man who, as a practical physician, is entitled to take his place among the highest.

Dr. JAMES MCLACHLAN, whose death occurred at his home at Lockerbie on December 18th, 1928, was a well-known practitioner in Annandale district. He had reached the age of 82 years, and had been ill for some time, but he had been able to continue active practice until about a year ago. A native of Rothesay, he received his medical education at Glasgow University, graduating M.B., C.M. in 1874. He was subsequently resident physician in Glasgow Royal Infirmary, and medical officer at Glamorganshire County Asylum. At the time of his retiral he had been engaged in practice for fifty-one years at Lockerbie, where he was widely known and held in the highest esteem. He was an active member of the British Medical Association, and took a prominent part in many local interests outside medicine. For many years Dr. McLachlan was an enthusiastic Volunteer, and had been surgeon colonel to the 3rd Volunteer Battalion, K.O.S.B., receiving the Volunteer Decoration for his services. He was a justice of the peace for Dumfriesshire, and was closely associated with several local lodges of Freemasons, Foresters, and others. The local nursing association found in him an active supporter, and he was for many years an elder in the United Free Church at Lockerbie. Dr. McLachlan is survived by a widow and a family of three sons and four daughters. He had been assisted for some years by one of his sons, Dr. Charles F. McLachlan, who carries on the practice.

The following well-known foreign medical men have recently died: Dr. GEORG SCHNEIDEMÜHL, emeritus extraordinary professor of comparative pathology at Kiel University, aged 75; Dr. FRANZ SCHMITT, professor of special pathology and treatment at Munich University; Dr. E. CHRISTELLER, extra-ordinary professor of morbid anatomy at Berlin; Professor C. FIRKET, a Berlin pathologist, aged 39; and Dr. EDWIN STANTON FAUST, a Basle pharmacologist, aged 58.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

Pinsent-Darwin Studentship.

THE managers of the Pinsent-Darwin Studentship have appointed Dr. R. A. McCance of the Pathological Department of King's College Hospital, as student for a period of three years from February 1st, 1929.

The first Pinsent-Darwin student is Dr. R. D. Gillespie, whose principal topics of investigation during the past three years have been (*a*) the relationships of traits of personality to psychoneuroses, and (*b*) the criteria for the differentiation of types of depression. An examination of eighty psychoneurotic patients has shown some fairly definite relationships of personality-traits both to the general type of psychoneurosis developing and to the individual symptoms. Of the various criteria that have been examined for the differentiation of depressive conditions, the most serviceable prognostically and therapeutically is that of reactivity, in the sense of responsiveness to psychological factors of whatever kind. A complicated assortment of other criteria has been examined in thirty cases so far and the cases grouped accordingly.

A subsidiary investigation, on hypochondriacal reactions, has dealt with their nosological position and therapeutic accessibility; the results have recently appeared in the medical press, especially (in detail) in the *Guy's Hospital Reports*.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examination indicated:

D.P.H.—R. M. Jones, J. Litt, F. R. O'Sheil, J. T. C. Roberts.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on January 10th, when the President, Sir Berkeley Moynihan, Bt., was in the chair.

The diploma of Fellowship was granted to James Eastwood Sykes, and the diploma of Membership to M. K. Gyi, J. F. V. Lart, and B. W. Rycroft.

The following diplomas were granted jointly with the Royal College of Physicians:

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—M. I. Ashmawi, A. Blagoff, N. M. Eadie, M. Husnain, N. H. Meacle, H. V. O'Shea, H. M. Petty, S. Roy, E. C. Tamplin, W. L. Thomas.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—R. W. Armstrong, Eileen A. Chennell, A. Craig, H. Hinchco, Phyllis M. Horton, D. L. McCullough, D. Menzies, J. E. Nicole, Muriel L. M. Northcote, Eveleen J. O'Brien, J. C. Ramsay, C. E. Roachsmith.

A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the examination concluded on December 14th 168 candidates were examined, of whom 45 were approved and 123 rejected.

In pursuance of a report of the Board of Examiners in Anatomy and Physiology for the Fellowship, regarding the examination concluded on December 14th last, the Hallett Prize was awarded to Shantilal Jamnadas Mehta, M.B., B.S., of the Bombay University and Middlesex Hospital. The Hallett Prize was instituted as a tribute to the valuable services of Sir Frederick Hallett, late secretary of the Examining Board in England, during his fifty years' service with the College.

Following a report from the Examiners in Anatomy for the Fellowship, Clause 3, Subsection 3 of Section 3 of the Fellowship regulations was amended as follows:

Old Regulation.

3. Of having dissected at a recognized medical school or schools for a period of not less than six terms or eighteen months (Dissections during the regular vacations will be accepted provided that the certificate shows that they have been performed under the superintendence of an authorized teacher in a medical school.)

New Regulation.

3. Of having dissected at a recognized medical school or schools for a period of not less than sixty weeks. (Dissections during the regular vacations will be accepted up to a maximum of six weeks in any one year, provided that the certificate shows that they have been performed under the superintendence of an authorized teacher in a medical school.)

A letter was read from Dr. Ali Bey Ibrahim expressing appreciation of the honour conferred upon him by the grant of the honorary Fellowship of the College.

A letter was also read from Mr. Frank C. Madden, F.R.C.S., dean of the Faculty of Medicine, Cairo, reporting that the following resolution was adopted by the Faculty on December 6th:

> That the congratulations of this Faculty Council be offered to Professor Ali Bey Ibrahim on his well-merited honour, and that the most cordial thanks of the Council be extended to the Council of the Royal College of Surgeons for the honour they had conferred on Professor Ali Bey and on this Faculty and their deep appreciation of this extraordinary mark of goodwill towards them on the part of the Royal College of Surgeons.

The President reported that he attended the centenary celebrations of the Faculty of Medicine, Cairo, held at Cairo from December 15th to 22nd last, and that he presented the diploma of the Honorary Fellowship to Dr. Ali Bey Ibrahim on that occasion.

Sir Thomas Barlow was re-elected and Sir Anthony Bowlby was elected as members of the Executive Committee of the Imperial Cancer Research Fund. Mr. McAdam Eccles and Mr. Victor Bonney were appointed to assist the British Pharmacopoeia Committee in deciding what articles or preparations in the last edition (1914) should be omitted from the next edition and what additions should be made to it.

Lectures.

In addition to the six Hunterian lectures by Sir Arthur Keith on the anatomy and evolution of the human brain, which we have already announced, the following lectures will be given at the College at 5 p.m. on the dates indicated:—January 28th—Professor Arthur Evans: Developmental Enterogenous Cysts and Diverticula; January 30th—Professor G. E. Gask: The Treatment of Malignant Disease by Radium, with demonstration of patients who have been treated; February 1st—Professor C. A. Pannett: Local Anaesthesia in the Surgery of the Upper Abdomen; February 4th—Professor R. J. McNeill Love: The Treatment of some Acute Abdominal Disorders; February 6th—Professor C. P. G. Wakeley: The Etiology, Pathology, and Treatment of Tumours of the Intestinal Tract; February 8th—Professor R. T. Payne: The Treatment of Varicose Veins and Varicose Ulcers by Injection; February 11th, 13th, and 15th—Professor H. A. Harris: Bone Growth in Health and Disease.

Medical News.

THE Hunterian Society of London will hold a banquet, to commemorate the two hundred and first anniversary of the birth of John Hunter, at the May Fair Hotel, Berkeley Street, W., on Thursday, February 14th, at 7.30 p.m. Communications should be addressed to Mr. W. E. Tanner, M.S., 38, Queen Anne Street, W.1.

THE annual dinner of past and present students of the Royal London Ophthalmic Hospital will be held at the Langham Hotel, Portland Place, on Thursday, February 7th, at 7 for 7.30 p.m., with Mr. Charles Howard Usher, F.R.C.S., in the chair. Early application for tickets (15s., without wine) should be made, enclosing remittance, to Sir William Lister, 24, Devonshire Place, W.1.

THE Eugenics Society will hold its Galton anniversary dinner on Saturday, February 16th, at 7.30 o'clock, at the Rembrandt Hotel, Brompton Road. The Galton Lecture, entitled "The coming of age of the society," will be given by Major Leonard Darwin, Sc.D.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that on Monday, January 21st, at 5 p.m., Dr. Robert Hutchison will lecture on "Pitfalls in the diagnosis of dyspepsia," at the Medical Society of London, 11, Chandos Street, Cavendish Square. On the same day at the Children's Clinic, Western General Dispensary, at 3 p.m., Dr. Bernard Myers will lecture on "The nervous child in our midst" (Cases); he will be assisted by Dr. Mackenzie Wallis, who will demonstrate the method of biochemical examination of the blood in neurotic children. Two demonstrations will be given on Wednesday, January 23rd, one at St. Mary's Hospital, at 2 p.m., by Mr. Zachary Cope, and the other at the Wellcome Museum of Medical Science, 33, Gordon Street, at 4 p.m., by Professor Hugh MacLean, on "The medical treatment of gastric and duodenal ulcer." On Thursday, January 24th, Dr. Gerald Slot will give a special lecture-demonstration, at 12.15 p.m., at the Royal Waterloo Hospital. There are no fees for attendance at the above lectures, etc. Two special courses begin in the following week, one opening at the Prince of Wales's Hospital, Tottenham, on Monday, January 28th, being a two weeks' intensive course in medicine, surgery, and the specialties; the second beginning on Tuesday, January 29th, a series of eight lecture-demonstrations in psychological medicine, to be given at the Bethlem Royal Hospital, at 11 a.m., on Tuesdays and Saturdays. Detailed syllabuses of these and of other special courses, and information on general post-graduate work, may be obtained of the secretary of the Fellowship, 1, Wimpole Street, London, W.1.

A POST-GRADUATE course on diseases of the nervous system will be held at the National Hospital, Queen Square, from January 28th to March 22nd, consisting of clinical lectures and demonstrations daily, except Wednesdays and Saturdays, at 3.30 p.m., teaching in the out-patient department daily, except Saturdays, at 2 p.m., and seven pathological lectures and demonstrations on Mondays, at 12 noon. Another course, comprising twelve clinical demonstrations, chiefly on methods of examination of the nervous system, will be given on Tuesdays and Thursdays, at 12 noon; and if there are sufficient applicants a course of eight lectures on the anatomy and physiology of the nervous system will be arranged on Fridays, at 12 noon. A limited number of students can be enrolled as ward clerks. Detailed information regarding fees, etc., for the above courses and for clerkships may be obtained from the secretary, Medical School, National Hospital, Queen Square, London, W.C.1.

THE Royal Society of Medicine has received from Lady Singer the generous gift of £500, in memory of the late Sir David Ferrier. Lady Singer, who has long been interested in the activities of the Royal Society of Medicine, was for some years associated with Sir David Ferrier in his work. The income from the gift, which is to be invested in trustee securities, will be devoted to the purchase of neurological books for the society's library, a form of memorial which will not only appeal to those interested in the same work as Sir David Ferrier, but which may be regarded as a step towards the endowment of the library of the Royal Society of Medicine.

THE *English Review* for January has an interesting paper by Sir Michael Sadler on the educational needs of England, and an unsigned article discussing the provisions of the Bill for Local Government Reform.

FOR the benefit of those who are obliged to consider their holiday arrangements early in the year, attention may be drawn to the medical study tours in Italy conducted by the State Tourist Department. Next year's tour will be held in September and will last seventeen days. The comfort of members is the subject of minute attention, and a special train is provided. Particulars may be obtained from the Ente Nazionale Industrie Turistiche, Via Marghera 6, Rome, or from the Italian Travel Bureau, 16, Waterloo Place, Regent Street, S.W.1.

WE have received a copy of the twenty-fifth anniversary number of the Handbook of the American Medical Association of Vienna, which gives details of the post-graduate courses and other forms of medical instruction available in that city during the next two years. Besides full accounts of the work possible in various clinics, useful information is provided about residence in Vienna, and the Handbook can be confidently recommended to any who wish to make use of these well-known teaching facilities. Inquiries should be addressed to the secretary of the American Medical Association of Vienna, Alserstrasse 9, Vienna.

ACCORDING to the New York correspondent of the *Times*, 2,647 new cases of influenza and 1,438 fresh cases of pneumonia were reported to the Department of Health in that city during the week ending January 12th. In the last seven weeks of 1928 it is estimated that some 26,000 deaths had occurred in the United States from influenza and pneumonia. On December 13th a bill was introduced into Congress appropriating a large sum to combat the epidemic.

AN international hospital congress, the first gathering of its kind, will assemble at Atlantic City, New Jersey, on June 13th. The object of the congress, as its name suggests, is to bring about the exchange of ideas among those concerned with the construction, organization, and administration of hospitals throughout the world. In connexion with the congress there is being arranged a valuable exhibit of plans and models of hospitals, of various types of equipment and supplies, and of statistical data relative to the care of the sick throughout the world. The congress will be followed immediately by the annual convention of the American Hospital Association.

AT a resumed inquest at Battersea on January 10th on Mrs. Doria Ruth Simmons, a Streatham woman teacher, who died in hospital on December 13th, 1928, the jury returned a verdict of manslaughter against Dr. Daniel Evans Powell, High Street, Tooting. Sir Bernard Spilsbury, in evidence, stated that death was due to abortion, septic infection, and inflammation of the kidneys. Dr. Powell was committed for trial by the coroner, Mr. Ingleby Oddie, and appeared before Mr. Broderick at the London South-Western Police Court on the day following, when the case was adjourned until Saturday, January 19th. Bail was allowed.

AN international congress on light treatment will be held in Paris from July 22nd to the 27th, 1929, under the presidency of Professor d'Arsonval. Papers will be read on the unit of measurement for the therapeutic use of ultra-violet rays; the treatment of tuberculous peritonitis by light; the prophylactic value of ultra-violet rays; and the treatment of rheumatic conditions by infra-red rays. There will be an exhibition of apparatus, and also one dealing with the history and progress of heliotherapy and phototherapy. An elementary course on actinotherapy will be given, and technical experiments will be demonstrated. The subscription for enrolment as a member of the congress, including the supply of a copy of the *Transactions*, is 16s. 6d. Further information may be obtained from Dr. W. Kerr Russell, 12, Park Crescent, Portland Place, W.1.

THE fourth meeting of the Permanent International Committee on Occupational Diseases will be held at the Faculty of Medicine in Lyons on April 3rd. Among subjects to be discussed are silicosis, cataract of occupational origin, and the endocrine system and poisoning, with, in addition, unpublished communications on questions relating to occupational diseases. The final programme will be drawn up when the titles and texts or summaries of these communications have been received. Participation in the meeting is open to titular members of the committee and to persons introduced by them, by the executive, or by the organizing committee; the subscription for persons from Great Britain is 20 gold francs, which entitles those attending, among other things, to travel on the French railways at half the ordinary fares. The meeting will end, after a series of visits to factories, on April 6th, when it is hoped to arrange an official banquet. Dr. Mazel, 54, Avenue de Noailles, Lyons, France, is the secretary of the organizing committee.

PROFESSOR LEOPOLD ARZT has recently been appointed editor of the *Wiener klinische Wochenschrift*.

THE following appointments have recently been made in foreign medical faculties: Dr. Kapfhammer of Leipzig, professor of physiology at Freiburg in Baden; Dr. George Hermann, professor of psychiatry in the German University at Prague, in succession to Professor O. Pötzl; and Dr. Otto Goetze, professor of surgery at Erlangen, in succession to Professor E. Graser.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediocra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF A MOLE.

"BETA" writes: Two years ago I removed from the neck of a girl, aged 18, a small mole, present from childhood, but which had recently grown slightly larger. Later, I noticed in the edge of the scar a minute pigmented speck, showing removal to have been incomplete. This speck remains stationary, of pin-point size. I should be glad of advice as to whether to do anything further or to leave it alone.

PAIN IN VARICOSE VEINS.

DR. DUNCAN GREIG (London, S.W.1) asks for advice as to the treatment of pain in varicose veins, especially as to the value of ultra-violet therapy in this condition. He states that one of his patients, a very tall man of gouty diathesis, has suffered more than twenty years from extensive and bilateral varicose veins, in which severe pains occur after slight exertion.

MUSCULAR CRAMPS IN ARTHRITIS.

DR. F. W. STANSFIELD (Reading) writes: In reply to "Alpha" (January 5th, p. 52), I would suggest that the patient may have a temperature which is habitually subnormal; this causes a deposition of sarcolactic acid in the muscles and nerve trunks. The remedy is to raise the body temperature either by physical means (hot baths, warm clothing, etc.) or by chemical means, or by both. I have found iodo-thiosinamin (iodo-lysin of Messrs. Allen and Hanburys) m xv after breakfast a convenient drug for this purpose. I raised my own temperature to 99°, or a little over, every evening for two months and cured the sciatica from which I suffered, as well as the secondary cramps. It is advisable, however, to begin with a smaller dose, since in patients who are saturated with rheumatism this amount given as an initial dose may cause a rigor. In some cases I have found even mij sufficient to begin with, this being gradually and cautiously increased. It is significant that "Alpha's" patient was free from cramps during an attack of lobar pneumonia, and for some weeks afterwards. The explanation may be that the pyrexia of pneumonia dissolved out the rheumatic poison for the time being.

INCOME TAX.

A Question of Assessment.

"P. Q." bought a practice last August and has been assessed on his earnings as assistant in another practice up to then *plus* a sum representing the amount at which his predecessor would have been assessed for the period August to April, 1929. Is this correct?

*** The assessment in respect of the assistant's remuneration is correct. As regards the practice it is not strictly correct to base the assessment on the predecessor's earnings; the proper basis of liability is "P. Q.'s" actual earnings for the period. But that amount must be calculated on a book debt basis and not on cash receipts, so that if the change has not adversely affected the practice "P. Q." may not feel that it is worth his while to dispute the existing assessment.

Expenses incurred by Assistant.

"C. F. K." inquires what will be the position with regard to his claim to deduct motor expenses incurred by him as assistant if his principal gives him an allowance in respect of petrol.

*** The claim will remain valid, but will be reduced by the amount of the petrol allowance.

LETTERS, NOTES, ETC.

ʒ AND ʒ.

DR. JAMES FANNING (London, E.C.) writes: The report of a recent inquest draws attention to the close similarity of the signs in use for the fluid ounce and fluid drachm of the imperial measure of capacity, a similarity which I have always felt to be undesirable. I suggest that it is time to consider altering the sign of the fluid ounce so that it shall be quite distinctive, and the risk of further such fatalities may be lessened. On several occasions it has been my experience to find the two confused (fortunately never with serious results), and I have no doubt that this has also been the experience of others. This confusion is not necessarily the result of ignorance, but may very easily occur as a result of temporary aberration while writing or copying prescriptions, or, on the other hand, a prescription need be only moderately illegible to be read mistakenly.

CREOSOTE IN PNEUMONIA.

DR. W. H. LEWIS (Llansantffraid) writes: The case of rapid recovery from pneumonia recorded by Dr. S. M. Wells on January 5th (p. 15) prompts me to give my experience of the creosote treatment. During the influenza epidemic of 1918 I had lost two cases of pneumonia in young adults, when I read a letter in the *British Medical Journal* giving an account of the value of creosote in pneumonia. I tried the drug in my next case with most gratifying results, the signs and symptoms subsiding after thirty hours. I subsequently recorded forty cases without a death. I have had no fatal pneumonia cases since where treatment with creosote has commenced within the first twelve hours, and my confidence in it is so profound that, if I see a patient within the first twelve hours, I promise a normal temperature after thirty hours. It may be that the type of pneumococcus I have had to deal with is particularly susceptible to creosote, but certainly the last ten years of my practice have been free from anxiety as regards treatment for this dread disease, which so frequently terminates young and promising lives.

SUDDEN DEATH ASCRIBED TO SCARLET FEVER.

DR. A. GORDON WILSON (Thurlstone, near Sheffield) writes: May I suggest that the cause of the sudden death attributed to scarlet fever by Dr. F. Stanley Rose of Sunderland in your issue of January 12th (p. 88) was due to von Jaksch's anaemia. The enlarged spleen, the sex, the fact that the boy was a twin, the pallor of the intestines, are all in favour of the boy having a disease which is known to terminate fatally when the patient is attacked by diarrhoea and gastric disturbance.

PAINLESS LABOURS.

DR. S. M. WELLS (Valparaiso, Chile) writes: Following the cases of painless labours reported on October 27th, 1928 (p. 745), by Dr. Mary DeGaris, I would like to record a case in my practice some three years ago. A primipara, who had had a normal pregnancy in every respect, went to bed one night feeling perfectly well and slept until the early hours of the morning. She awoke with a desire to go the lavatory, and while there a lot of water came away. This alarmed her, and although she had no pain, I was called to see her. On my arrival she was perfectly comfortable in bed; I found the bag of waters had ruptured and the head was bulging the perineum. She had no pain at all, only an intermittent desire to go to stool. On being told to bear down when this desire came, a full-term child was born, without even a perineal tear, within half an hour of my arrival at the house. The puerperium was normal.

BRITISH INDUSTRIES FAIR.

THE British Industries Fair has been arranged for the second fortnight of February at the White City, London, and at Birmingham. An advance catalogue of the London section which has reached us has about the same weight and measurements as an average brick, and contains particulars of the exhibits of more than 1,200 manufacturers, all of them British, and all of them showing goods only of their own manufacture. The Fair thus becomes an extended shop window of British industry. Any medical man who happens to be interested in the commercial production of the material and equipment used in his practice will find much to interest him in the large sections devoted to medical and surgical appliances and instruments, drugs and pharmaceutical preparations, *x*-ray and electro-medical apparatus, and laboratory and hospital fittings and ware. It is pleasant to learn to how small an extent we need depend upon the foreign manufacturer, and how versatile and enterprising are our own countrymen. An interesting feature of the catalogue is that all the goods are indexed in nine languages.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 46, 47, 48, 49, and 52 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *19*.

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